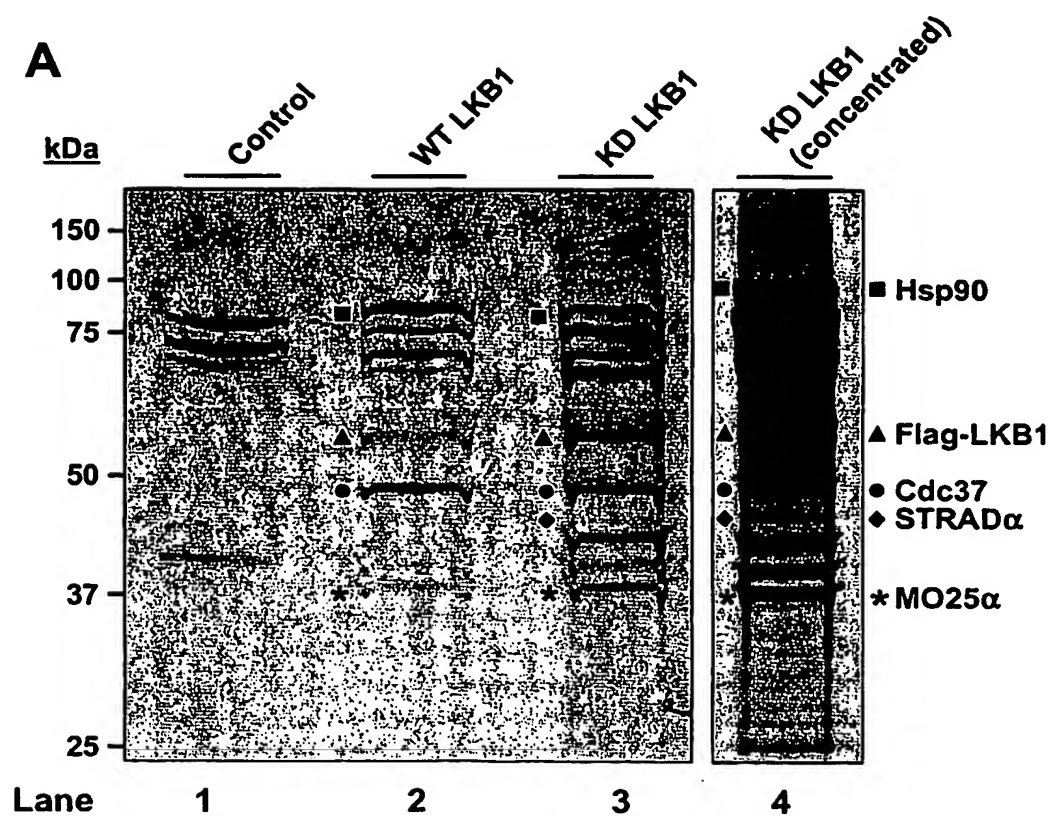


Figure 1



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Figure 1a**B**

	Protein name	Peptide matches	% sequence coverage	NCBI gi number
■	Hsp90	15/44	30%	20149594
▲	Flag-LKB1	14/46	35%	7106425
●	Cdc37	31/72	59%	5901922
◆	STRAD α	11/80	34%	12060855
*	MO25 α	17/37	47%	7706481

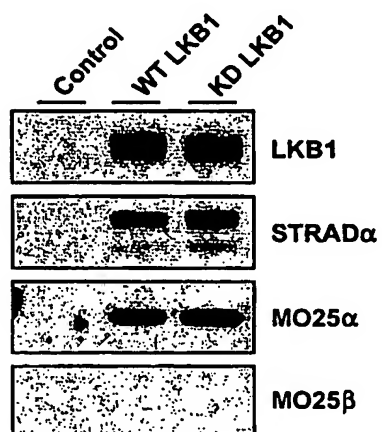
C

Figure 2

A

```

hMO25α  1  MPP-FFGKSHKSPADIVVNCRESFAVVEKOD-----ISDKKAERKATEEVSKNIVA
hMO25β  1  MPI--FSKSHKNDPAETVETLKNIAELERQ-----DKKTEKASEEVKRSLOA
dMO25   1  MPI--FGKSCKSPVIVVNSLKEADNAFHAG-----DENVEKAOHVSKNNVS
cMO25α  1  MLKPLFGKEDKPPADIVVNCRESFAVVEKOD-----TNTSEKAVEKAIETKMAAL
cMO25β  1  MPI-LFGKSHKSPADIVVNCRESFAVVEKOD-----LPPPKLDDKGNIQSDKHYKALDEVSKNVA

hMO25α  50  MKETLYGII--NEKEP-OTBVAQIAQELVNSGLSTIADPOLIDFEGKKDVAOIFNNII
hMO25β  46  MKETLYGII--NEKEP-PTBVAQIAQELVNSGLSTIADPOLIDFEGKKDVAOIFNNII
dMO25   46  MNMLYGII--SEAEPPADYVVAQLQELVNSGLSTIADPOLIDFEGKKDVAOIFNNII
cMO25α  53  ARTFVYGDANEPNN---EOTVQLAQELVNSGLSTIADPOLIDFEGKKDVAOIFNNII
cMO25β  60  LKSFVYGNDSAPPSSEHVVAQIAQELVNSGLSTIADPOLIDFEGKKDVAOIFNNII

hMO25α  107  RRQIGTRSPTEVEYICTOQNILEMLKGYE--SPETALNCCMLRECIRHEPLAKIILHS
hMO25β  103  RRQIGTRSPTEVEYISNPHILFMLKGYE--APQIAIRCCMLRECIRHEPLAKIILHS
dMO25   104  RRQIGTRSPTEVEYCTPEILFTLQAGYDAHPHAINSCMLRECAYEALAKIILHS
cMO25α  110  RRQIGTRSPTEVEYDAPPEIHTLLEGYE--QPHIATCCMLRECIRHEPLAKIILHS
cMO25β  120  RRQIGTRSPTEVEYCAPPEIHTLLEGYE--VPHIATCCMLRECIRHEPLAKIILHS

hMO25α  165  QFDFFVEYVENSTFDIASDAFTFKDLLTRHKHSAEFLSNHYDFF--SEYKLLHSENY
hMO25β  161  QFRDFFVEYVENSTFDIASDAFTFKDLLTRHKHSAEFLSNHYDTIF--EDVEKLLHSENY
dMO25   164  EFKKFFLYVEYVENSTFDIASDAFTFKDLLTRHKHSAEFLSNHYDFF--SEYKLLHSENY
cMO25α  168  YFORFIVEYVSDVFDIADAFSTFKDLMTTRHKHSAEFLSNHYDRFH--GQYSAITHSENY
cMO25β  178  VENTFELVYVSEVFDIESDAFSTFKDLMTTRHKHSAEFLSNHYDTIF--AQYONLHSENY

hMO25α  224  VTRRQSLKLLGELLDRHNFETMTKYISKPENLKLMMNLLRDKSRNIQFEAFHVFKVFVA
hMO25β  220  VTRRQSLKLLGELLDRHNFETMTKYISKPENLKLMMNLLRDKSRNIQFEAFHVFKVFVA
dMO25   224  VTRRQSLKLLGELLDRHNFETMTKYISKPENLKLMMNLLRDKSRNIQFEAFHVFKVFVA
cMO25α  227  VTRRQSLKLLGELLDRHNFETMTKYISKPENLKLMMNLLRDKSRNIQFEAFHVFKVFVA
cMO25β  237  VTRRQSLKLLGELLDRHNFETMTKYISKPENLKLMMNLLRDKSRNIQFEAFHVFKVFVA

hMO25α  284  NPNKTOPIDILLNCAKLEFLSKFQNDRTDEQFNDEKAYLIKQIQELPLPAQEA--
hMO25β  280  SPNKTQPIVHILLNCPKLEFLSKFQKERTHDEQFADENNYLIKQIQELPLKTAPE--
dMO25   284  NPNKTOPIDILLNCAKLEFLSKFQNDRTDEQFNDEKAYLIKQIQELPLPEA--
cMO25α  287  NPNKTOPIDILLNCAKLEFLSKFQNDRTDEQFNDEKAYLIKQIQELPLPAQEA--
cMO25β  297  NPNKTOPIDILLNCAKLEFLSKFQNDRTDEQFNDEKAYLIKQIQELPLPAQEA--

hMO25α  -----
hMO25β  -----
dMO25   -----
cMO25α  -----
cMO25β  357  KSKEDENQEPAGPSEGPSTSQ

```

Figure 2a

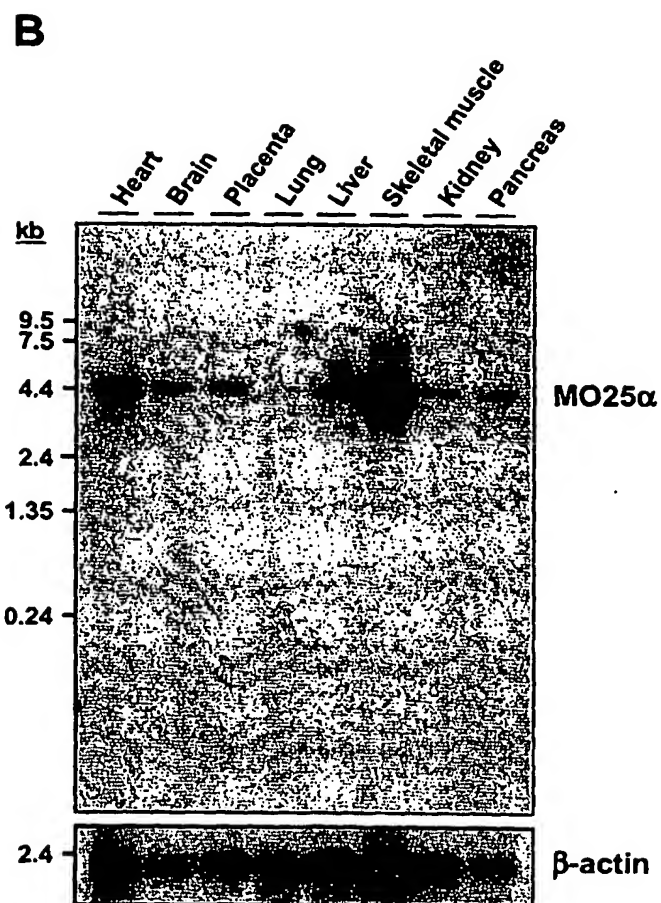


Figure 2b

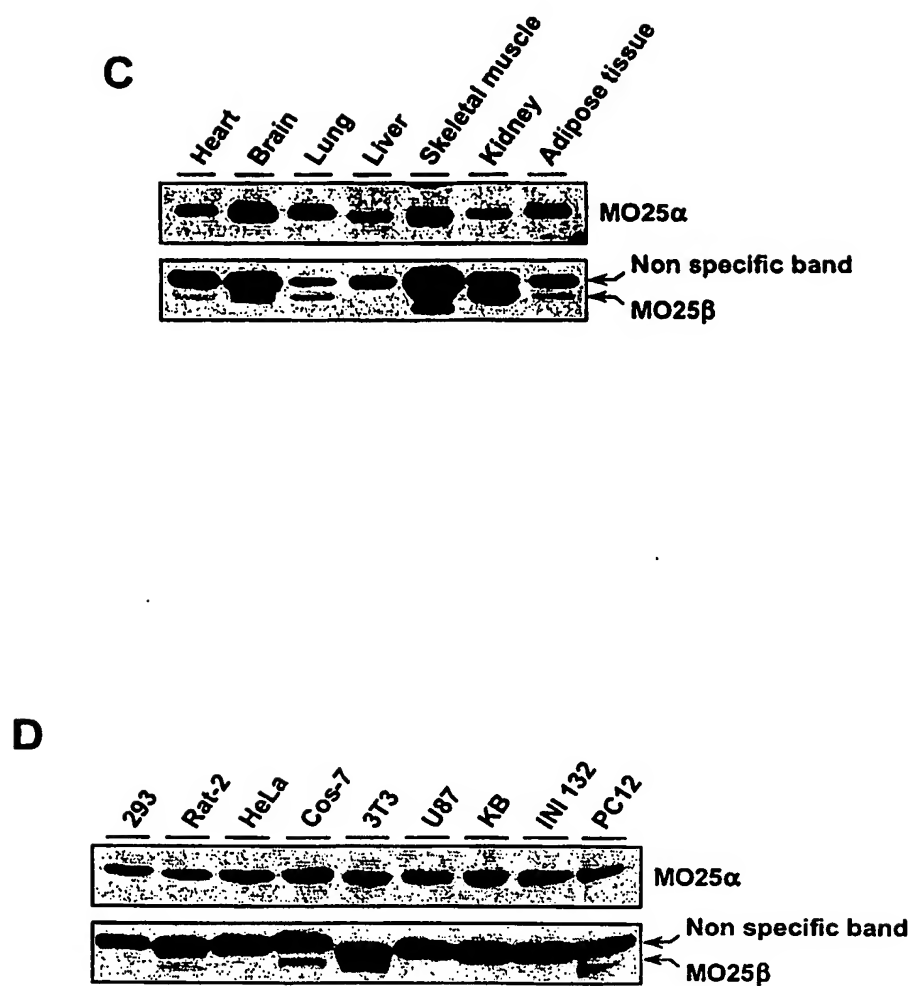


Figure 3

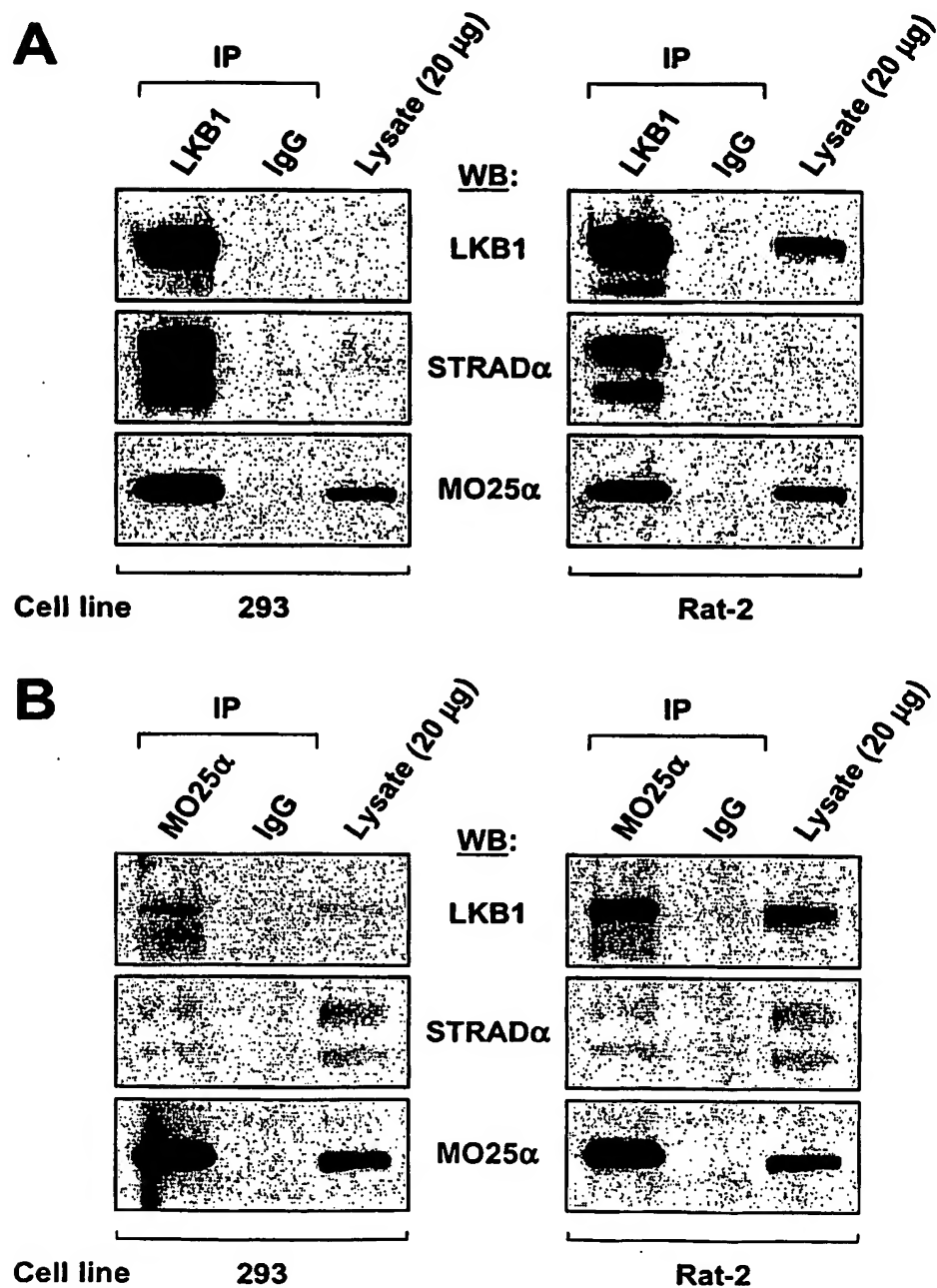


Figure 4

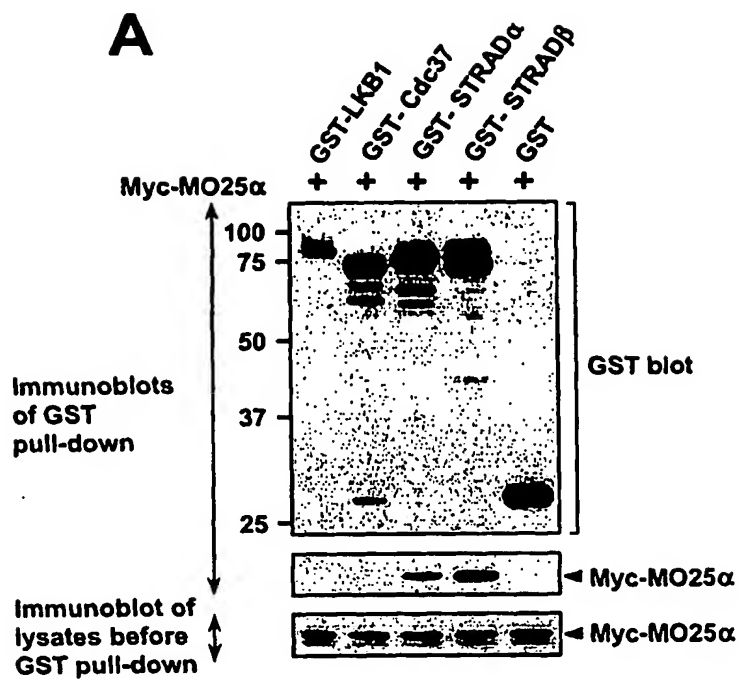
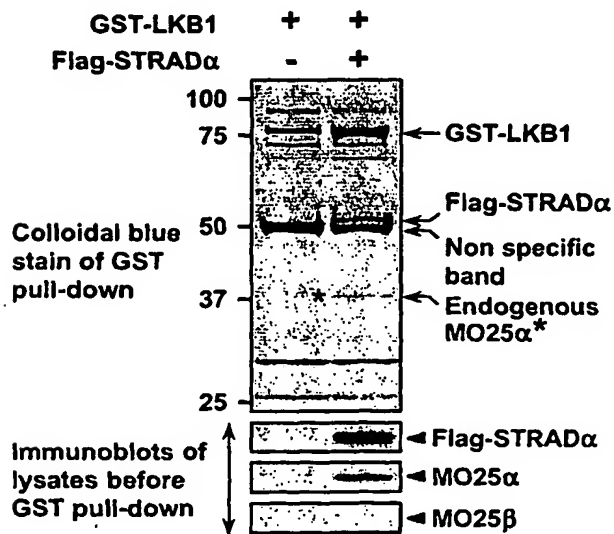
**B**

Figure 4a

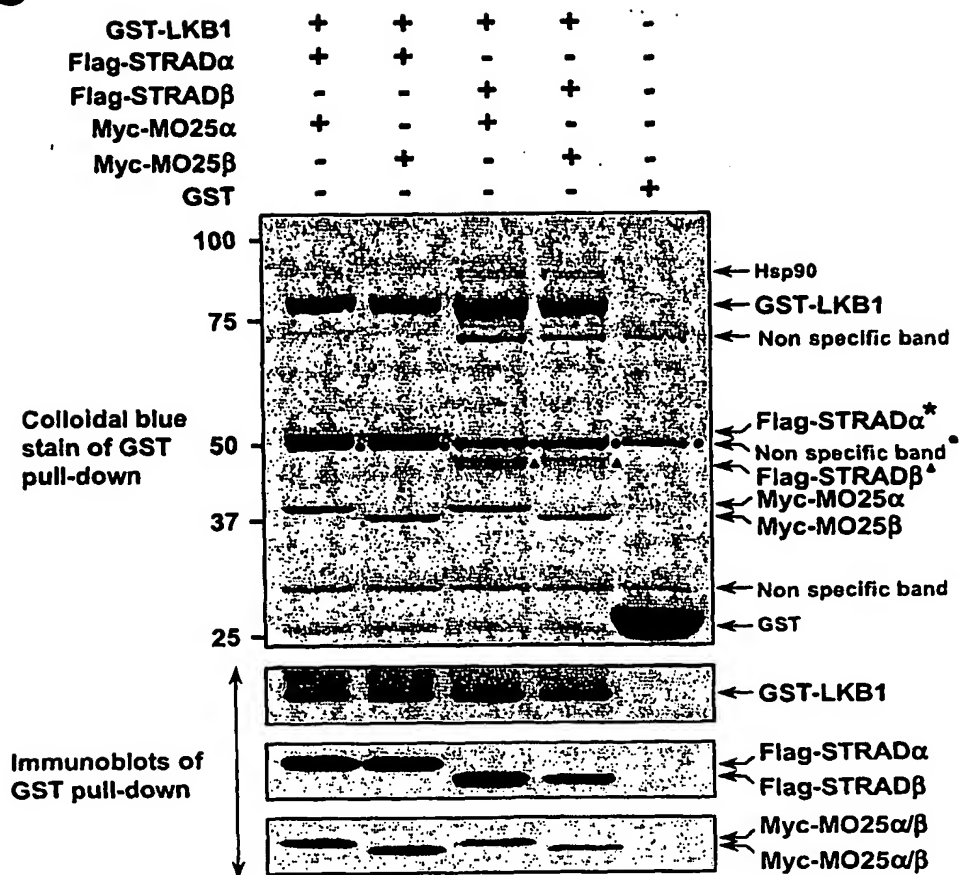
C

Figure 5



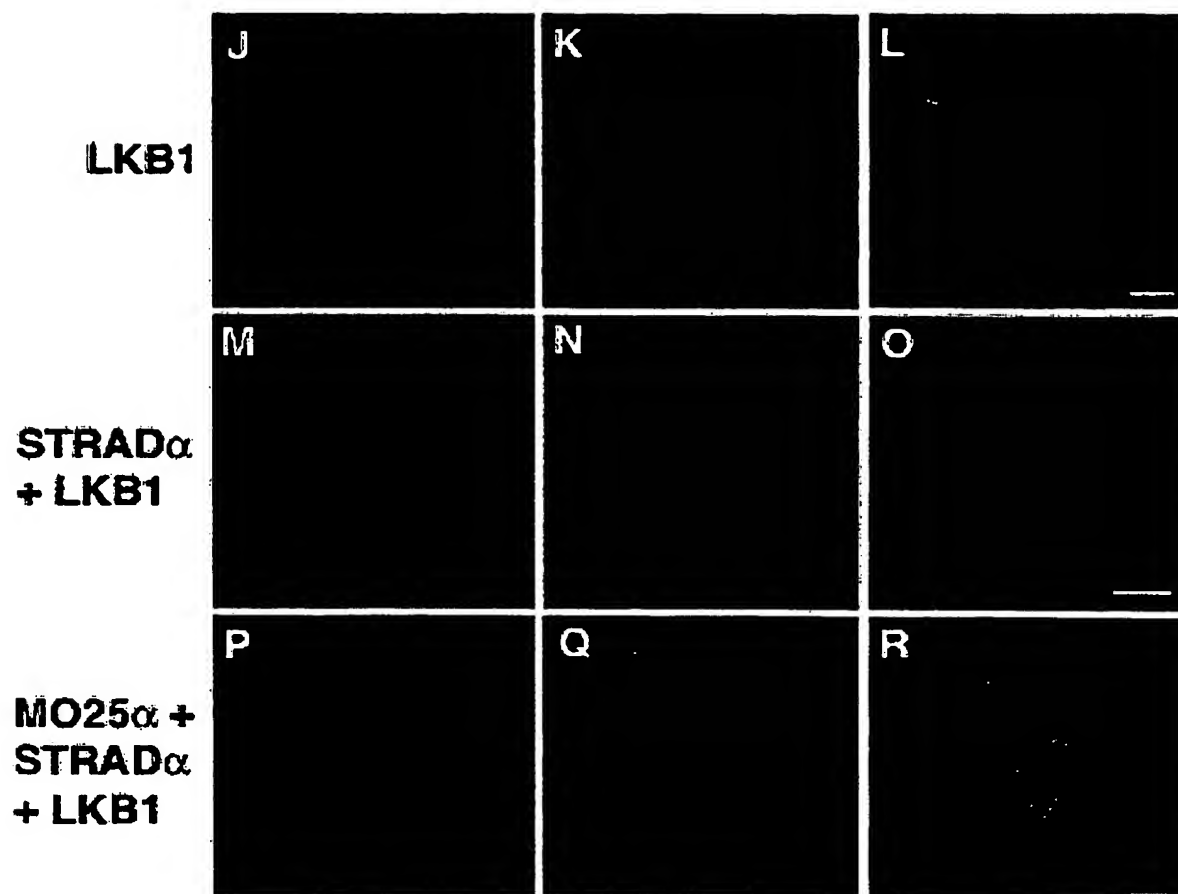
Figure 5a

Figure 6

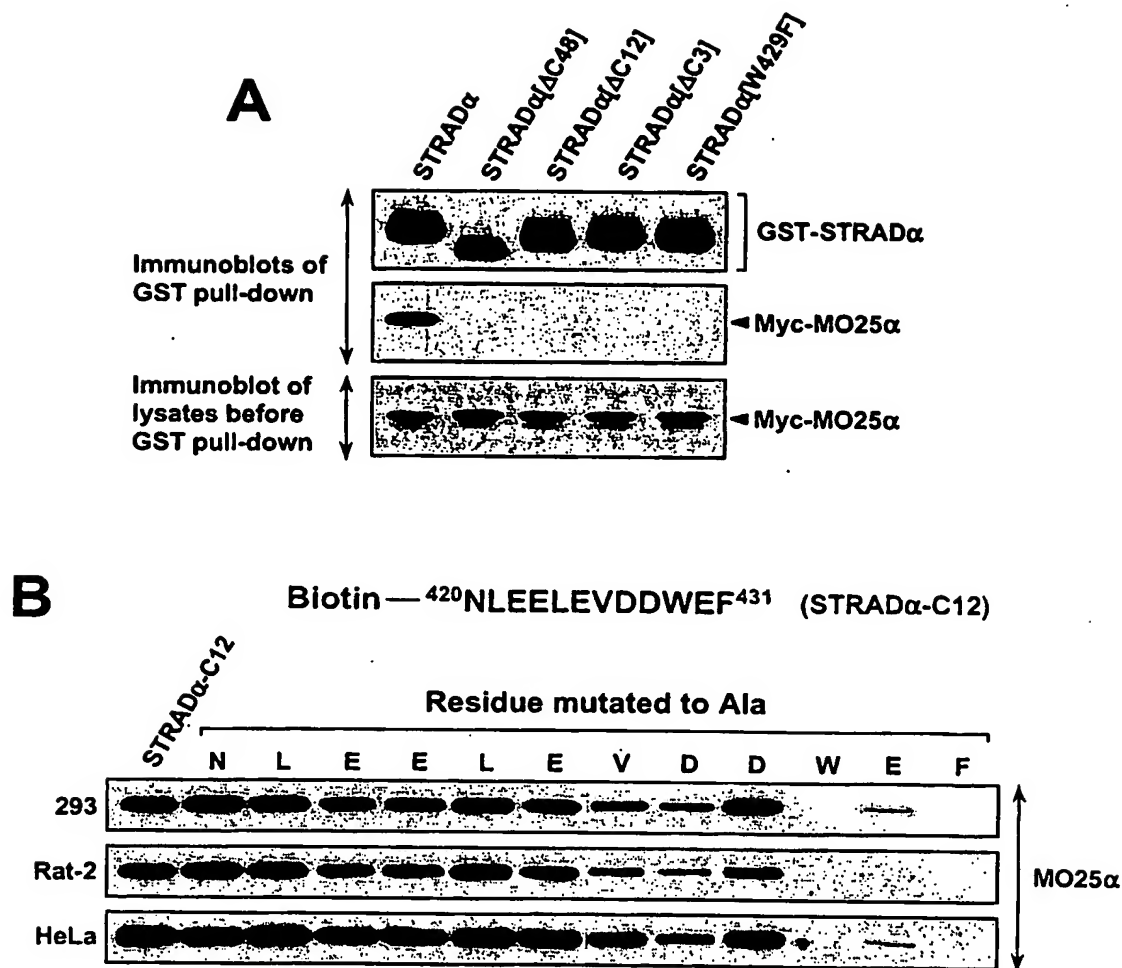


Figure 6a

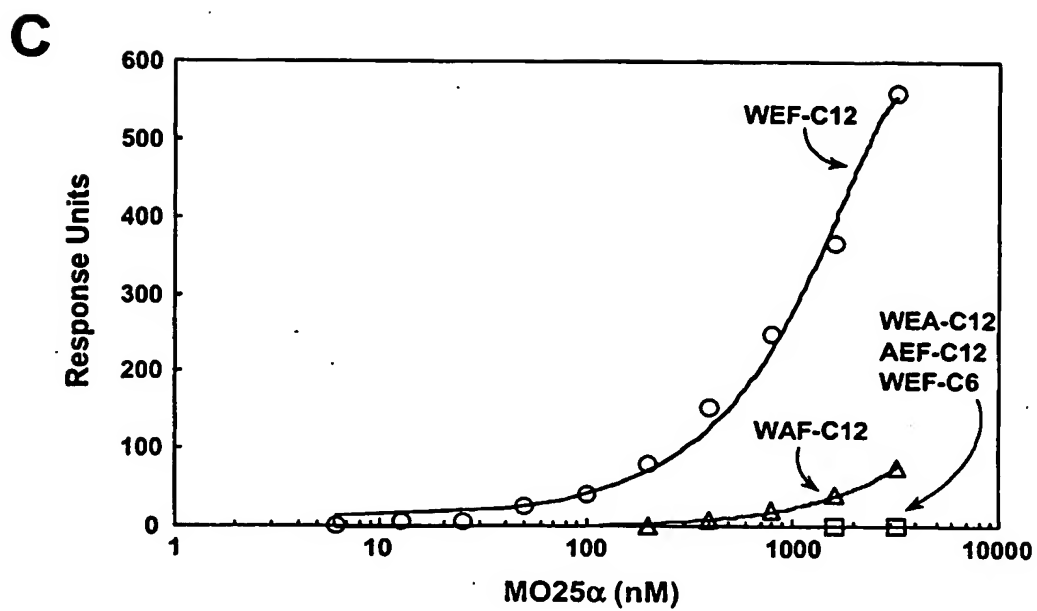


Figure 7

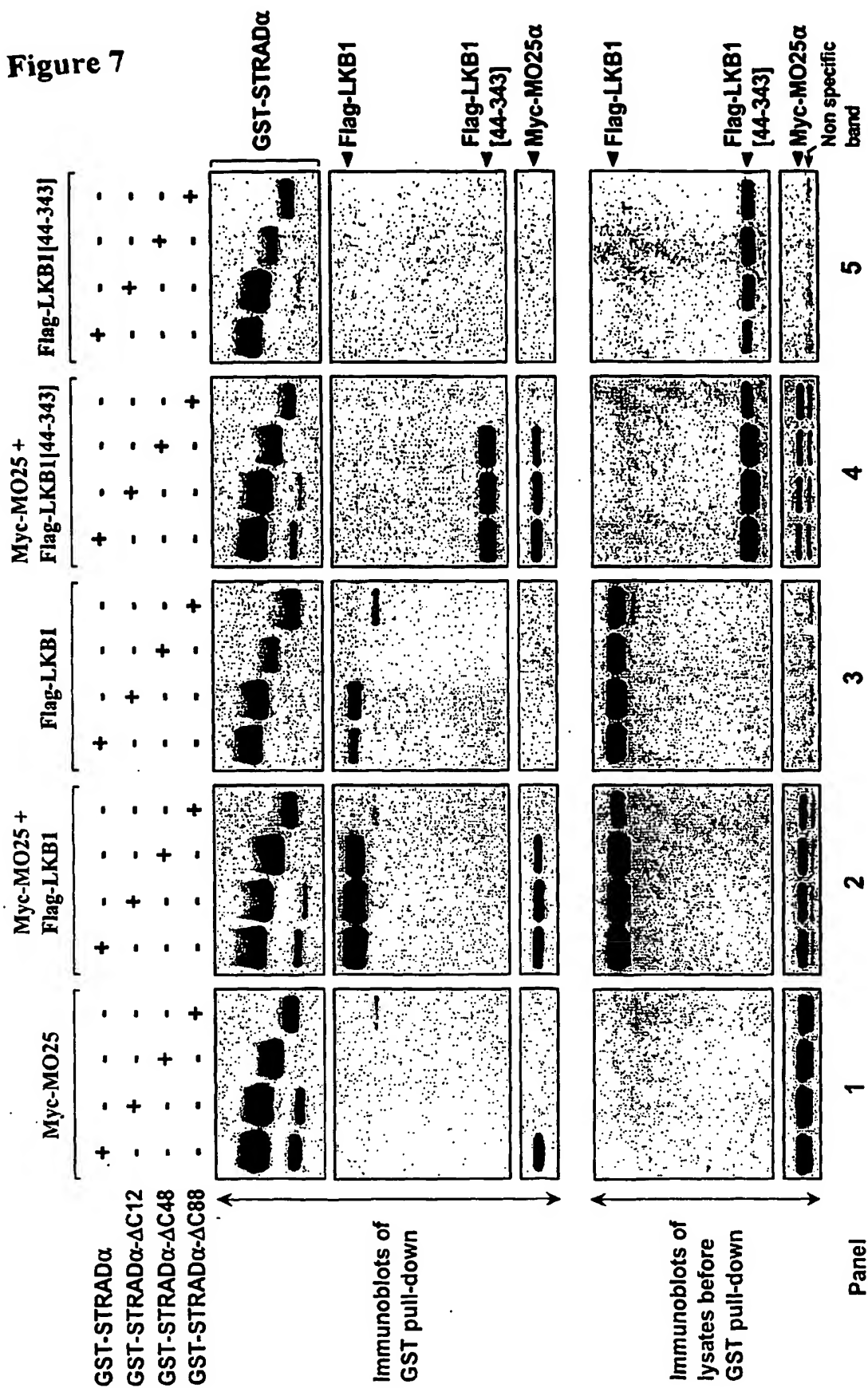


Figure 8

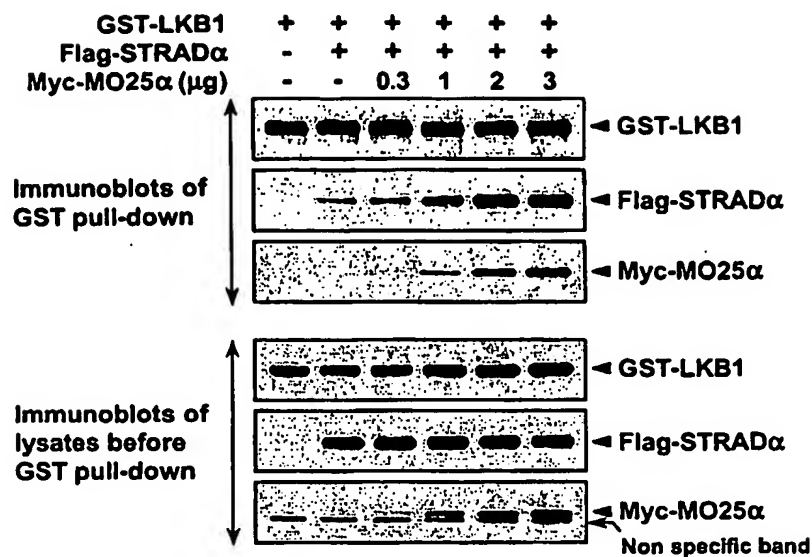
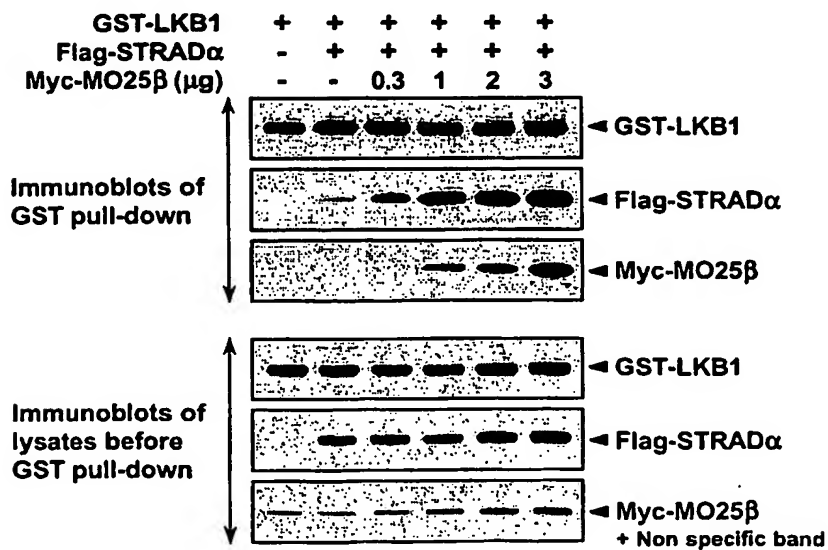
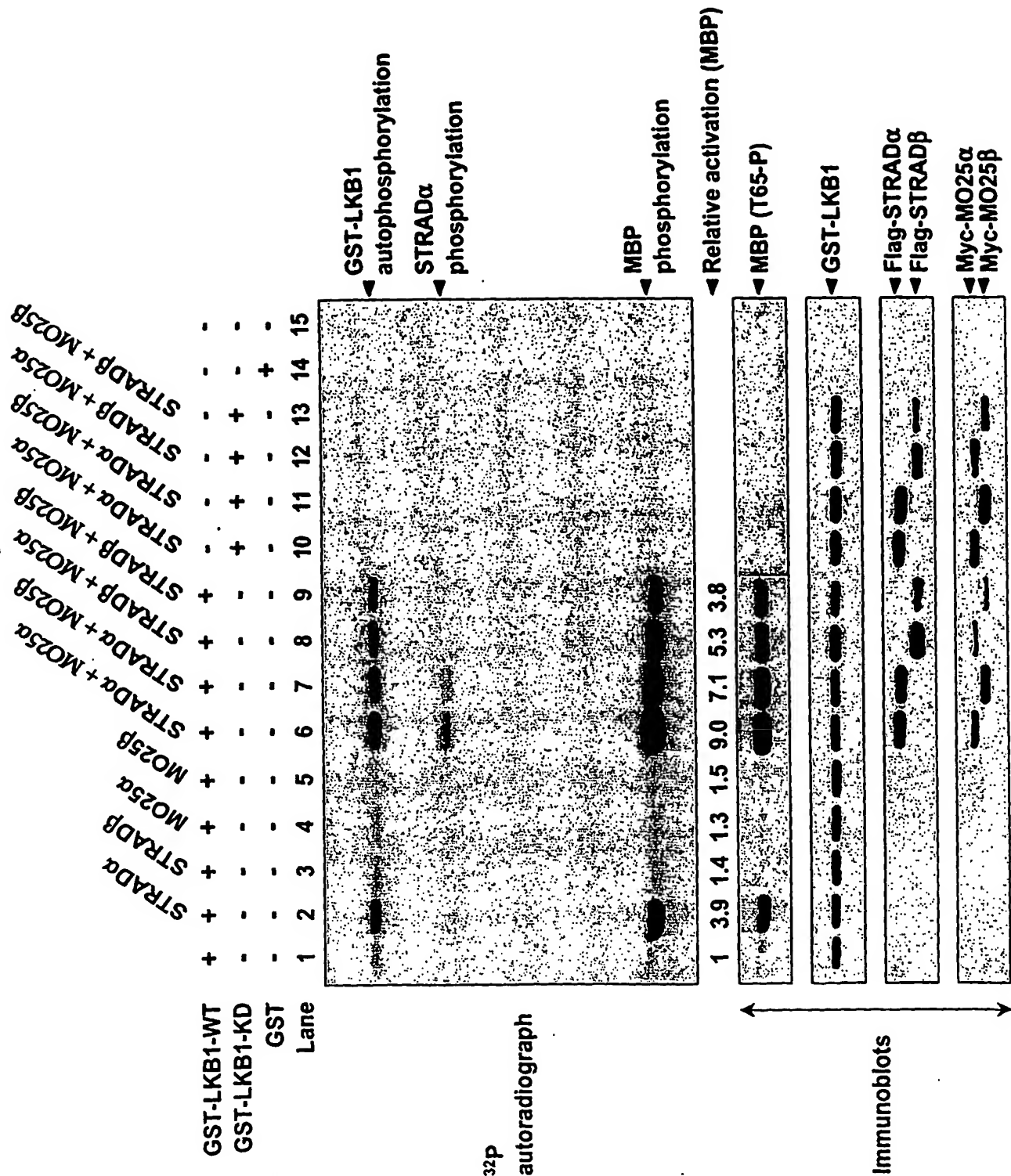
A**B**

Figure 9



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Figure 11

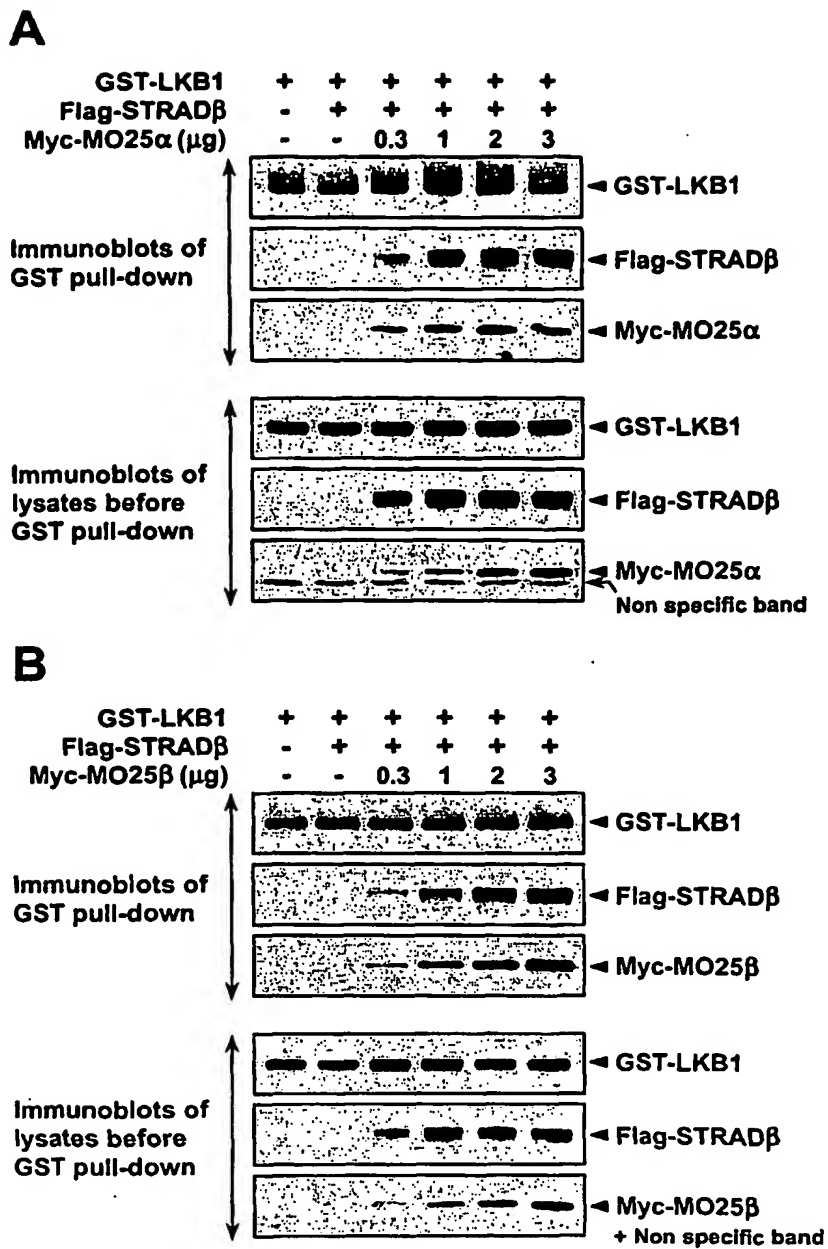


Figure 12

Tos3	11	..LPRSSLLYNNASNSSSRIKETRKVKLLYNPLTKR.....Q...ILNNFEILATLGNGQ
Pak1	94	..TPTTSSFCSSGSSKNKVKETNRISLTYPVSKR.....K...VLNTYEIIEKELGHGQ
CaMKK β	121	CICPSLPYSPVSSPQSSPRLPRRPTVESHHVSITGM.....QDCVQLNQYTLKDEIGKGS
LKB1	7	QQLGMFTEGELMSVGMDFIHRIDSTEVIYQP..RR.....KRAKLIGKYLMDLLGEGS
Elm1	39	TSSFGSSFSQOKPTYSTIIGENIHTILDEIRPYVKKITVSDQDKKTINQYTLGVSAGSGQ
consensus	121	p s s s s s rik t v l y pltkr q ilnny i lG Gq
Tos3	61	YGKVKLARDLGTGALVAIKILNRFEKRS....GYSL.....QLKV.EN.....
Pak1	144	HGKVKLARDILSKQLVAIKIVDRHEKKQRKFFTFIK.....SSKISEN.....
CaMKK β	176	YGVVKLAYNENDNTYYAMKVLK..KKLIRQAGFPR.....RPPPRGTRPAPGGCIQP
LKB1	60	YGKVKEVLDSETLCRRRAVKILK..KKLRR.....I
Elm1	99	FGYVRKAYSSTLGKVAVKIIIPKKPWNAQQYSVNQVMRQIQLWKSCKGKITTNMSGNEAMR
consensus	181	yGkVkla d t lvaikil k k k y k
Tos3	99	...PRVNQEIEVMKRCHHE..NVVELYEILNDPESTKVYLVLVEYCSRGFPVKWCPENKMEI
Pak1	187	...DKIKREIAIMKKCHHK..HVVQLIEVLDDLKSRKIYLVLEYCSRGEVKWCPPDCMES
CaMKK β	227	RGPIEQVYQEIAILKKLDHP..NVVKLVEVLDDPNEDHLYMVFELVNQGPV.....MEV
LKB1	89	PNGEANVKKEIQLLRRLRHK..NVIQLVDVLYNEEKQKMYMVMMEYC.....VCGMQEM.L
Elm1	159	LMNIEKCRWEIFAASRLRNHVHVRLEICLDSPFSESIWIVTNWCSLGELQWKRRDDDEDI
consensus	241	drv k EI vmkrlhh nvv lievllddp s kvylvleycs g v wc mei
Tos3	154	.KAVGPSILTFQQ....SRKVVLDVVSGLEYLHSGGITHRDIKPSNLLISSNGTV.KISD
Pak1	242	.DAKGPSLLSFQE....TREILRGVVLGLEYLHYQGIIHRDIKPANLLISGDGTV.KISD
CaMKK β	279	.PTLKP..LSEDQ....ARFYFQDLIKGIEYLHYQKIIHRDIKPSNLLVGEDGHI.KIAD
LKB1	141	.DSVPEKRFPVCQ....AHGYFCQLIDGLEYLHSGGIVHKDIKPGNLLLTGGTL.KISD
Elm1	219	LPQWKIVISNCSVSTFAKKILEDMTKGLEYLHSGGCIHRDIKPSNILLDEEEKVAKLSD
consensus	301	v p ils q ar vv dvv GLEYLHsQgiiHrDIKPSnLLis dgtv KisD
Tos3	208	FG..VAM.STATGSTNIQSSHEQLLKSRLGTPAFFAPELCSTEKEY.....
Pak1	296	FG..VSLAASSTNSSDSSESLELAKTVGTPAFFAPEMCLGEDAFTRYNLTKENLFRG
CaMKK β	331	FG..V.....SNEFKGS..DALLSNTVGTAPAFMAPESLS.....ETRKIFSG
LKB1	195	LG..VAEALHPFAADDTCRTSQ.....GSPAFQPPEIANGLDTFE.....
Elm1	279	FGSCIFTQSLPFSDFANFEDCFQRELNKIVGTAPAFIAPELCHLGNSKRDFVTD.....
consensus	361	fG v t s d s l r vGtPAF aPElc y
Tos3	252	SC.SSAIDIWSLGVTIYCLLFGKLPFNANSGLLEFDSIINKPLEFFPSYEEMLNATSGIT
Pak1	354	SCISFMIDIWAVGVTLYCLLFGMLPFFSDFELKLFKIVNDPLKFPTFKEIQSNKVSQVS
CaMKK β	369	K...ALDVWAMGVTLYCFVFGQCFPMDERIMCLHSHKISQALEFPDQPDIA.....
LKB1	233	...GFKVDIWSAGVTLYNITTGLYPFEGDNIYKLFENIGKGSYAIP.....
Elm1	332	...GFKLDIWSLGVTIYCLLYNELPFFGENEFETYHKIIEVSLSSKINGNTLNDLVIKRL
consensus	421	f iDiWslGVTLyClLfg lPF ad l lfdkIi l fp em
Tos3	311	M.EEYT...DAKDLLKKLLQKDPDKRIKLADIKVHPFMC....HYGKSDAASVL...TN
Pak1	414	CEEEYE...MAKDLLKKLLEKNPQKRMTIPAIAKKHPFVS.WDFDHPVENDKLLS...SV
CaMKK β	417E...DLKDLITRMLDKNPESRIVVPEIKLHPWVTRHGAEPLPSEDENCTLVEVTE
LKB1	276	.GDCGP...PLSDLLKGMLEYEPAKRFSIRQIRQHSWFRK...KHPPAEAPVPIPPSPDT
Elm1	389	LEKDVTLRISIQDLVKVLSRDQPIDSRNHSQISSSS.VNPVRNEGVPVRRFFGRLLTKKGK
consensus	481	ee lkDlkkllleknP kri l Ik hpfv dh p d vl t
Tos3	359	LETFHELVSPPP.....SSCKRVELVSLPVNSSFASLDSVYMFENFDHNNLRGTGADRNS
Pak1	467	LE..QKLRF.....QCNQTDQFE.PISISKHELKNAV.....SGVGKKIKESV
CaMKK β	469	EEVENSVKHIPSLATVILVKTMIRKRSFGNPFEGSRREERSLSAPGNLLTKQGSNDLQG
LKB1	329	KDRWRSMTVPYLEDLHGADEDEDLFDIEDDIIYTQDFTVPGQVPPEEEASHNGQRRGLPK
Elm1	448	KKTSGKGDKVLVSATSKVTFPIHIDEEDPKECFSTTVLRSSPDSSDYCSSLGEAAIQVT
consensus	541	e lk p l rve pv s lks s lg

Figure 13

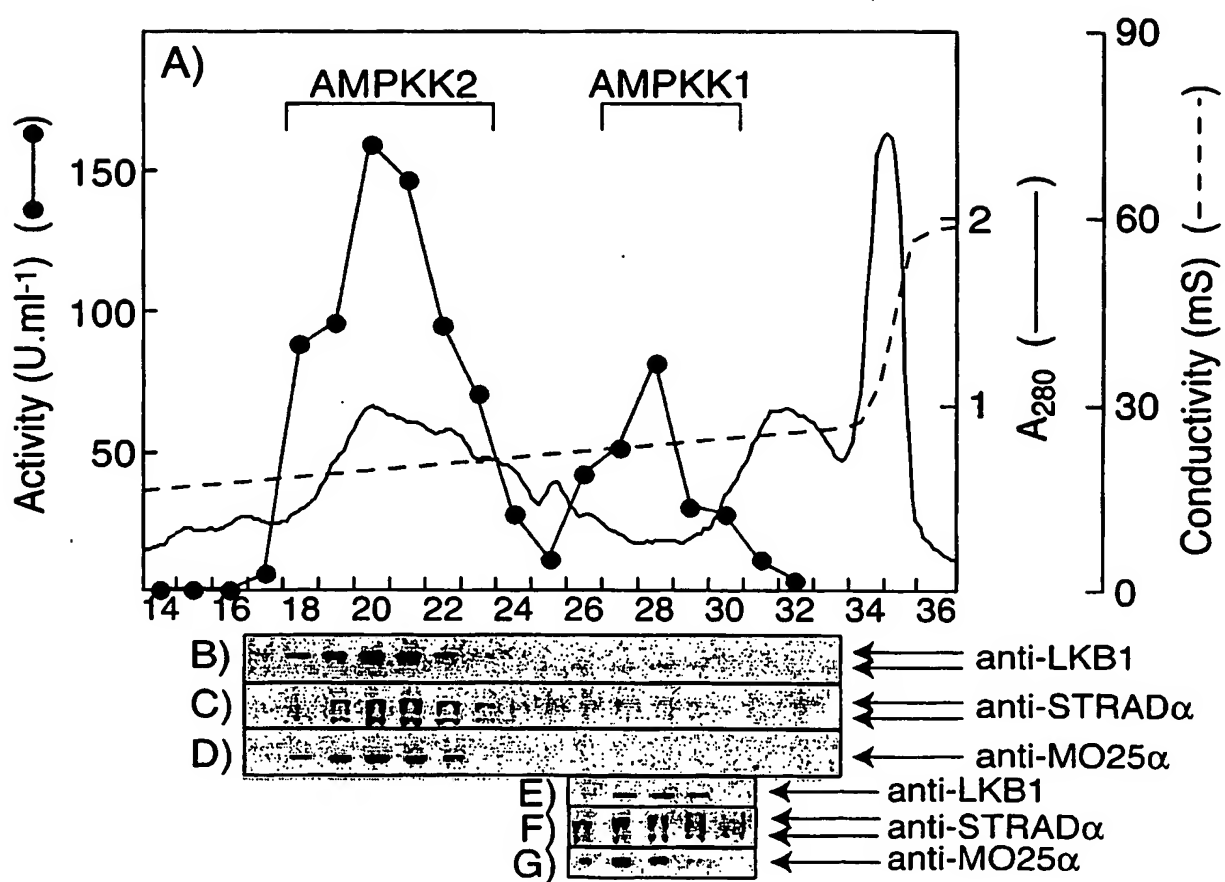


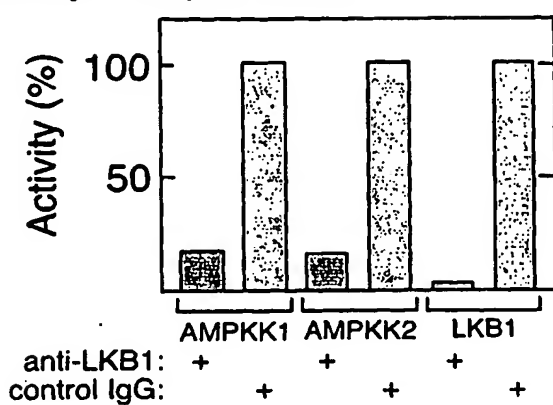
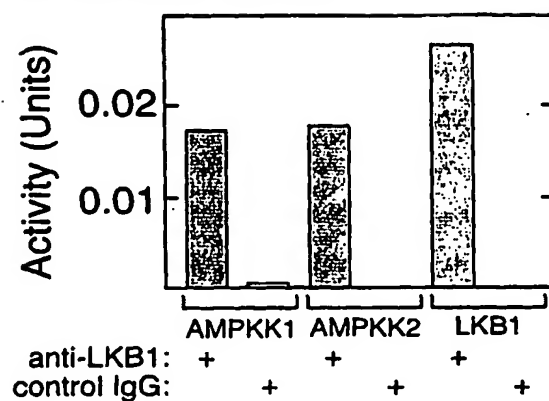
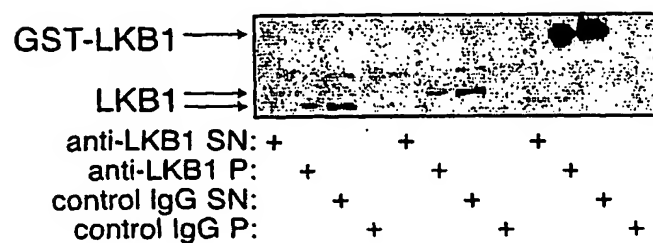
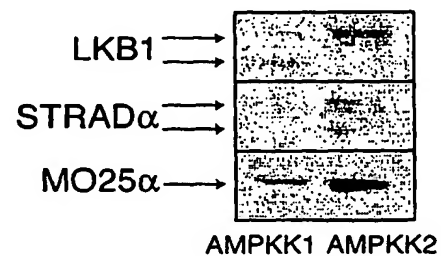
Figure 14**A) Activity in supernatant****C) Activity in pellet****B) Immunoprecipitation of polypeptides****D) Immunoblotting of pellets**

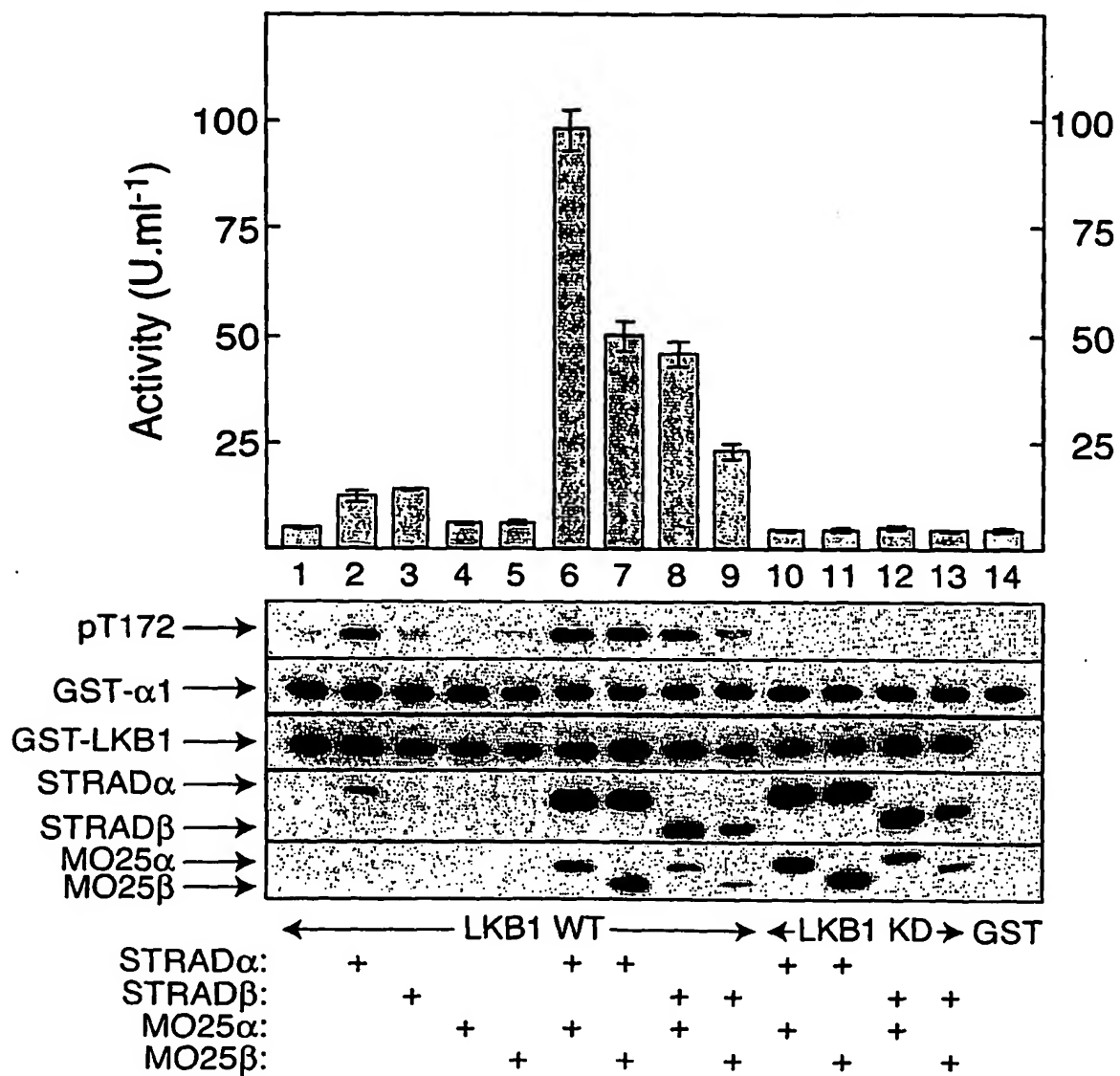
Figure 15**A) Activation of AMPK α 1 catalytic domain by LKB1**

Figure 15a**B) Phosphorylation of AMPK α 1 catalytic domain by LKB1**

Figure 16

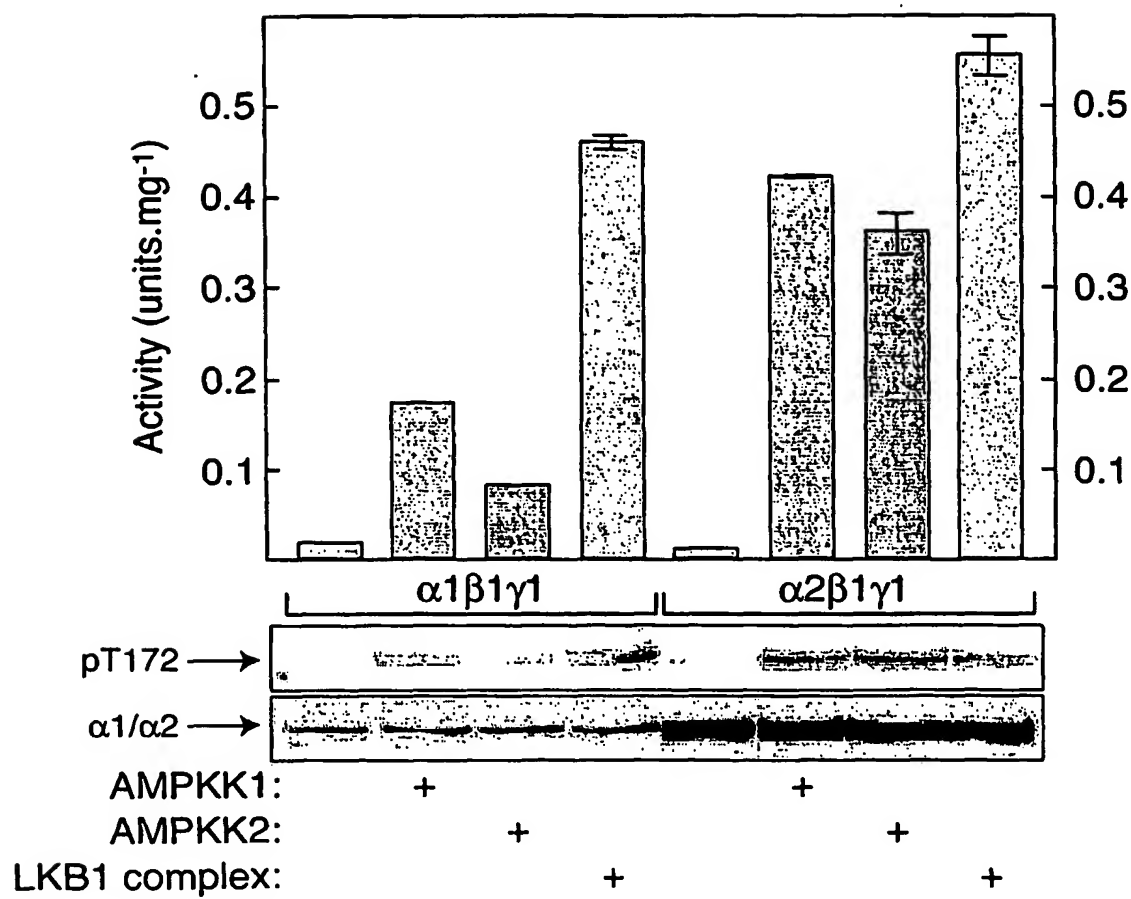


Figure 17

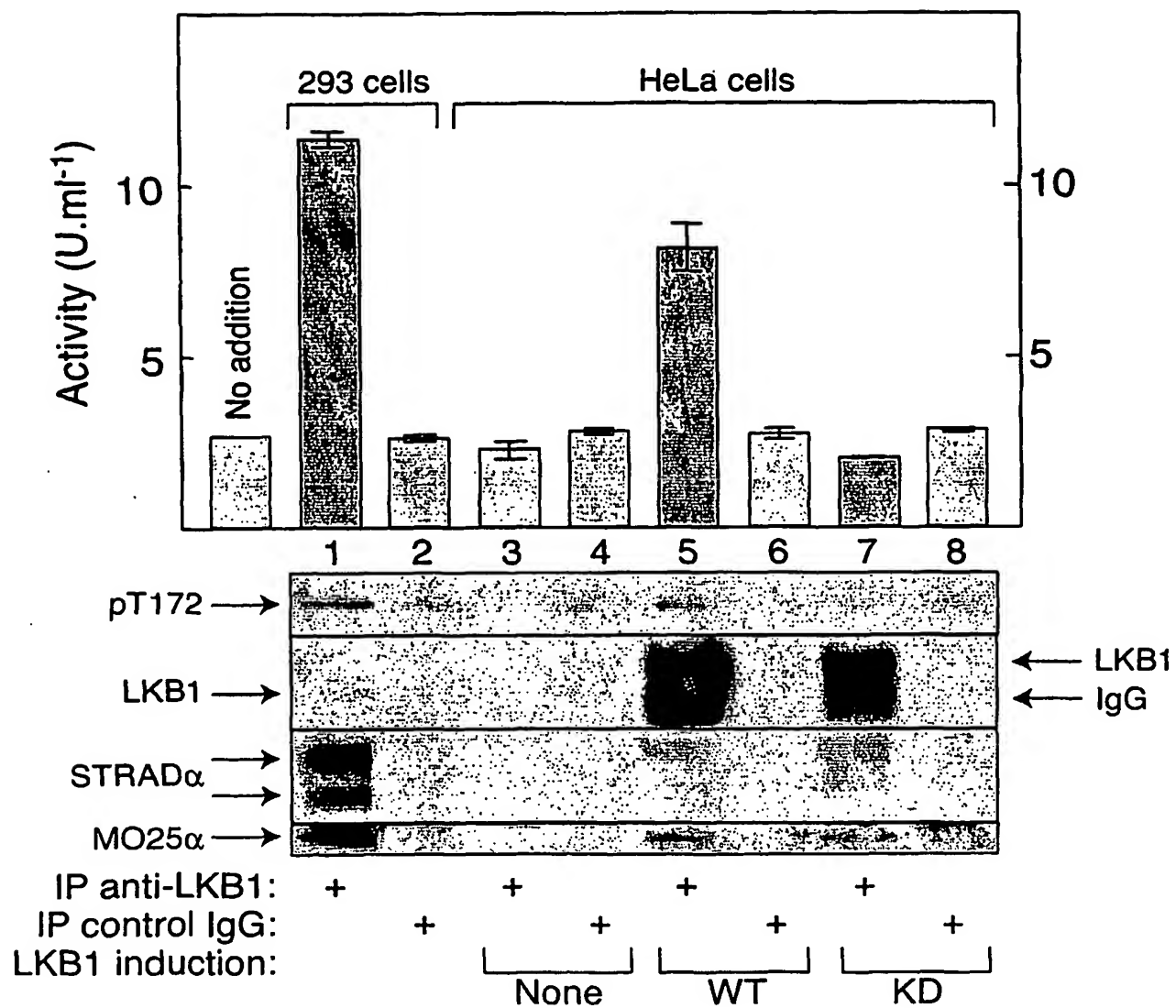


Figure 18

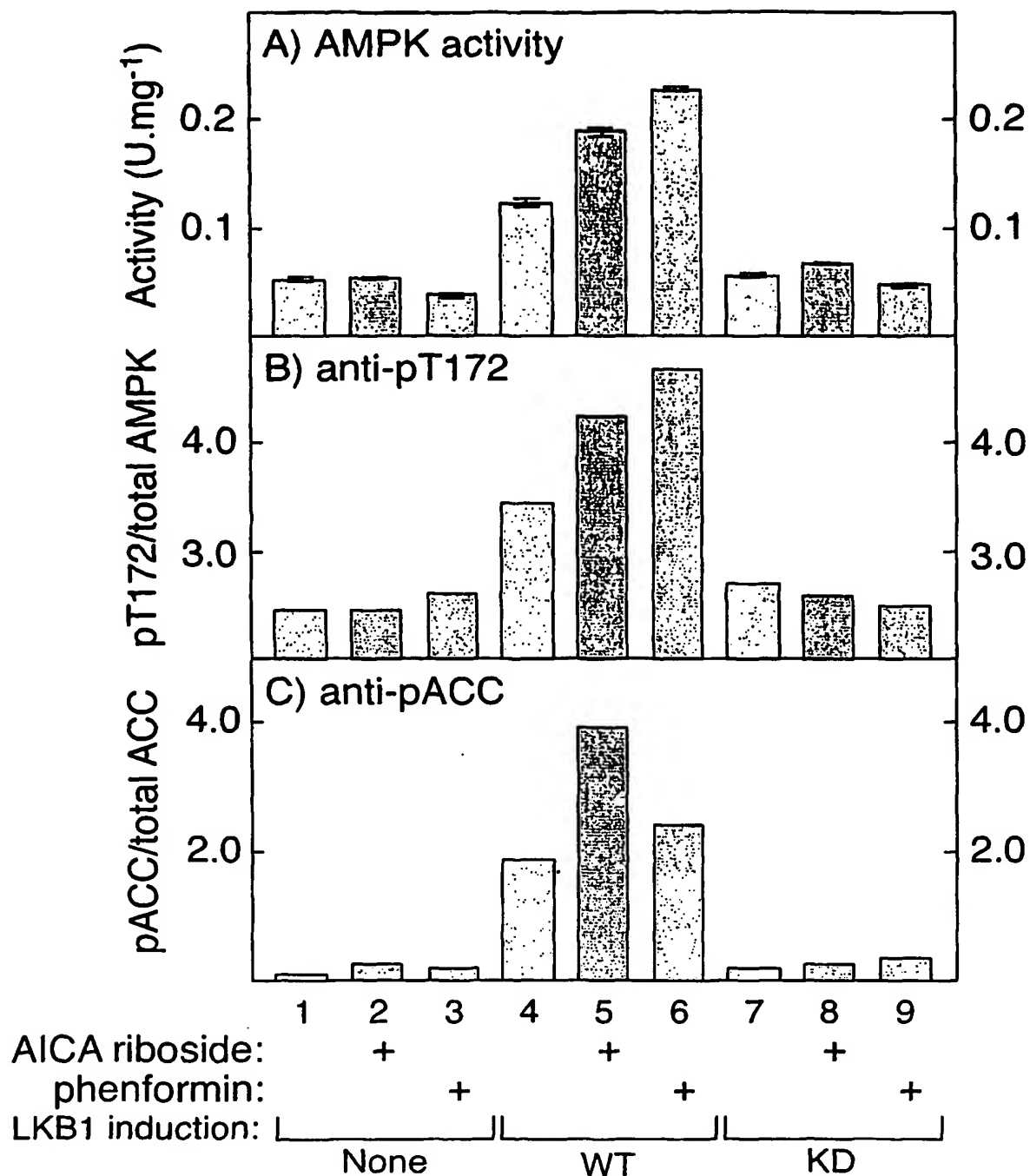
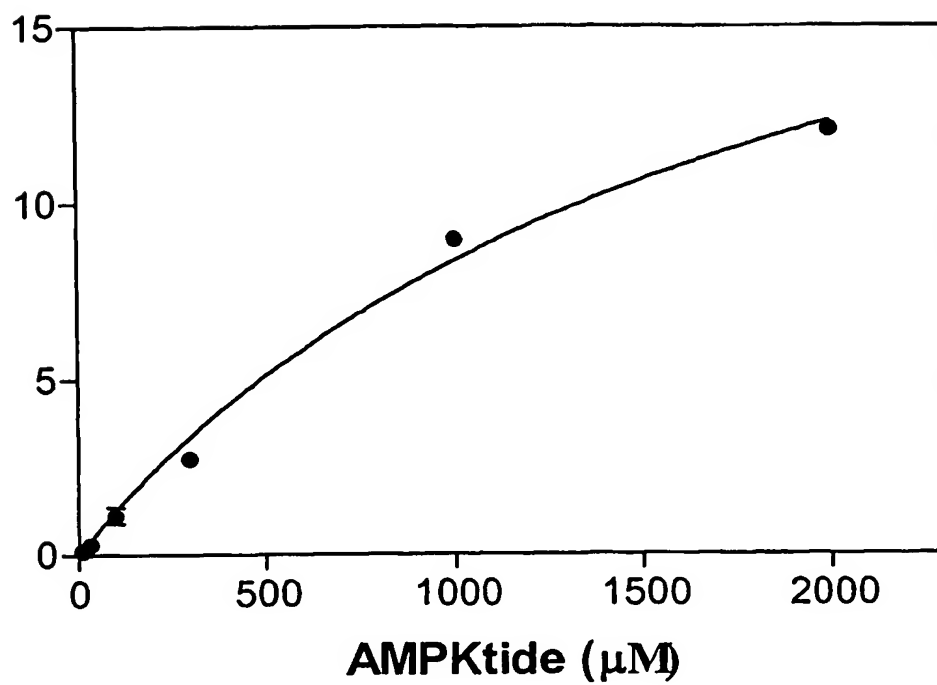


Figure 19

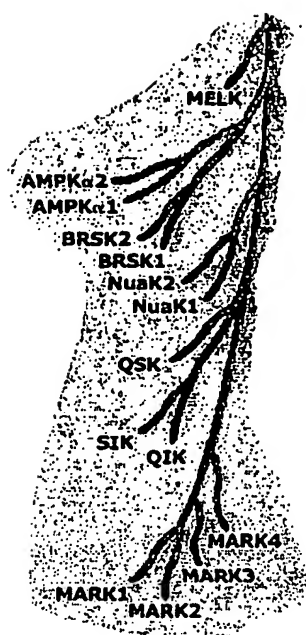
			-11 -12	-10	-9	-5	-3	-2	P	
			↓	↓	↓	↓	↓	↓	↓	
PKA-C α	239	DFGFAKR..V.KG.RTWTLCGTPEYLAPE								
PKC α	539	DFGMCKEHMM.DGVTTTRTFCGTPDYIAPE								
NuaK1	196	DFGLSNLYQKDK..FLQTFCGSPLYASPE								
NuaK2	237	DFGLSNLYHQGK..FLQTFCGSPLYASPE								
BrsK1	190	DFGMASLQVGDS..LLETSCGSPHYACPE								
BrsK2	159	DFGMASLQVGDS..LLETSCGSPHYACPE								
SIK	167	DFGFGNFYKSGE..PLSTWCGSPPYAAPE								
QIK	160	DFGFGNFFKSGE..LLATWCGSPPYAAPE								
AtSnRK1- α 1	160	DFGLSNIMRDGH..FLKTSCGSPNYAAPE								
AtSnRK1- α 2	161	DFGLSNVMRDGH..FLKTSCGSPNYAAPE								
AMPK- α 1	159	DFGLSNMMSDGE..FLRTSCGSPNYAAPE								
AMPK- α 2	157	DFGLSNMMSDGE..FLRTSCGSPNYAAPE								
ScSnf1	195	DFGLSNIMTDGN..FLKTSCGSPNYAAPE								
QSK	206	DFGFSNLFTPGQ..LLKTWCGSPPYAAPE								
MELK	150	DFGLCAKPKGNKDYHLQTCCGSLAYAAPE								
consensus	243	DFGlsnl g fL TsCGSp YAAPE								

Figure 20

$K_m: 1.80 \pm 0.48$

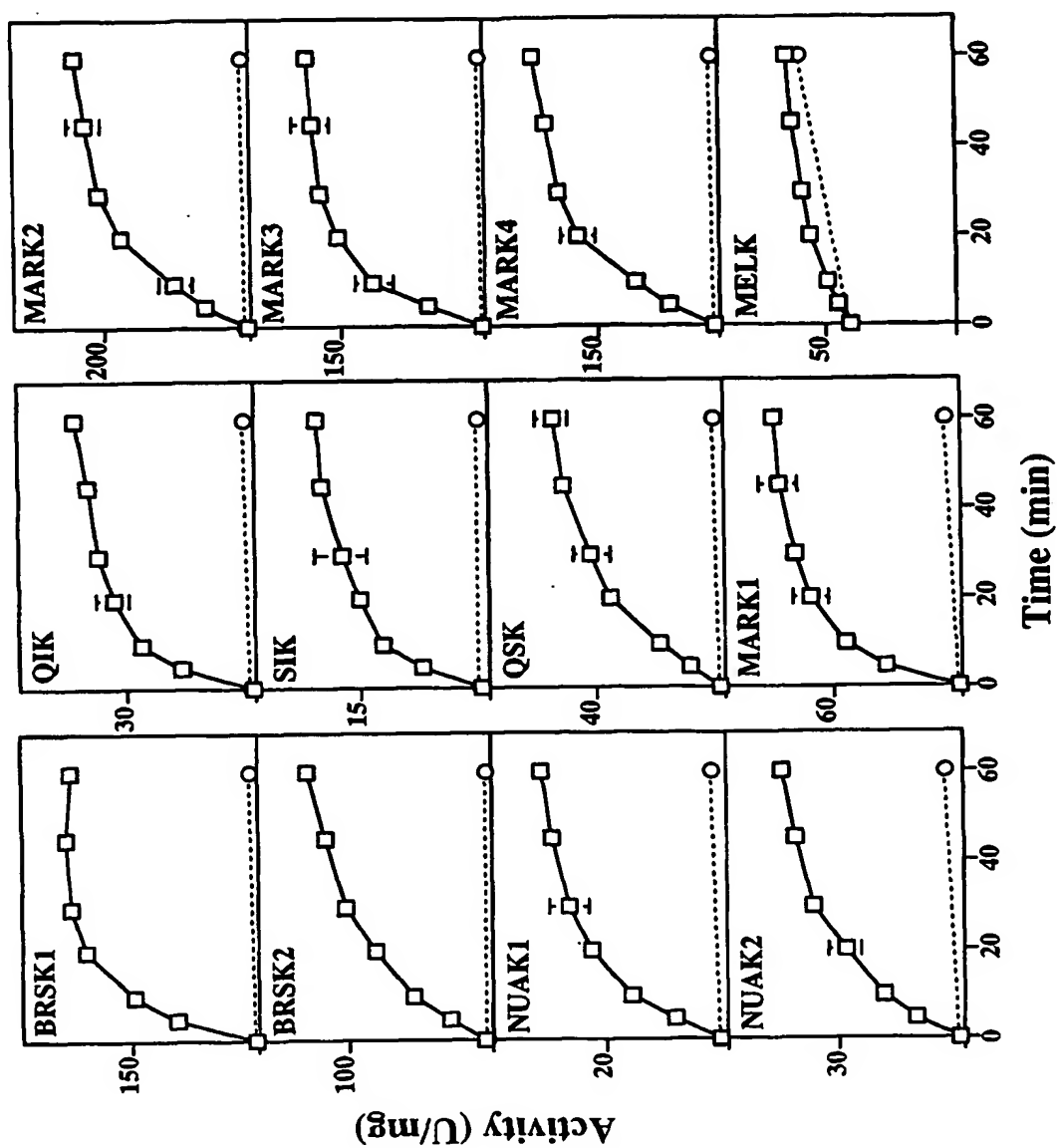
$V_{max}: 23.43 \pm 3.51 \text{ U/mg}$

Figure 21



AMPK1	159-	DFGLSNMMSDGE--FLRT	*	SCGSPNYAAPE
AMPK2	157-	DFGLSNMMSDGE--FLRT	*	SCGSPNYAAPE
BRSK1	174-	DFGMASLQVGDS--LLET		SCGSPHYACPE
BRSK2	159-	DFGMASLQVGDS--LLET		SCGSPHYACPE
NUAK1	196-	DFGLSNLYQKDK--FLQT		FCGSPLYASPE
NUAK2	193-	DFGLSNLYHQGK--FLQT		FCGSPLYASPE
SIK	167-	DFGFGNFFYKSGE--PLST		WCGSPPYAAPE
QIK	160-	DFGFGNFFYKSGE--LLAT		WCGSPPYAAPE
QSK	206-	DFGFSNLETPCQ--LLKT		WCGSPPYAAPE
MARK1	200-	DFGFSNEFTVGN--KLDTE		FCGSPPYAAPE
MARK2	160-	DFGFSNEFTVGN--KLDTE		FCGSPPYAAPE
MARK3	196-	DFGFSNEFTVGG--KLDTE		FCGSPPYAAPE
MARK4	198-	DFGFSNEFTLGS--KLDTE		FCGSPPYAAPE
MELK	150-	DFGLCAKPKGNKDYHLQT		CCGSLAYAAPE

Figure 21A



30/38
Figure 22

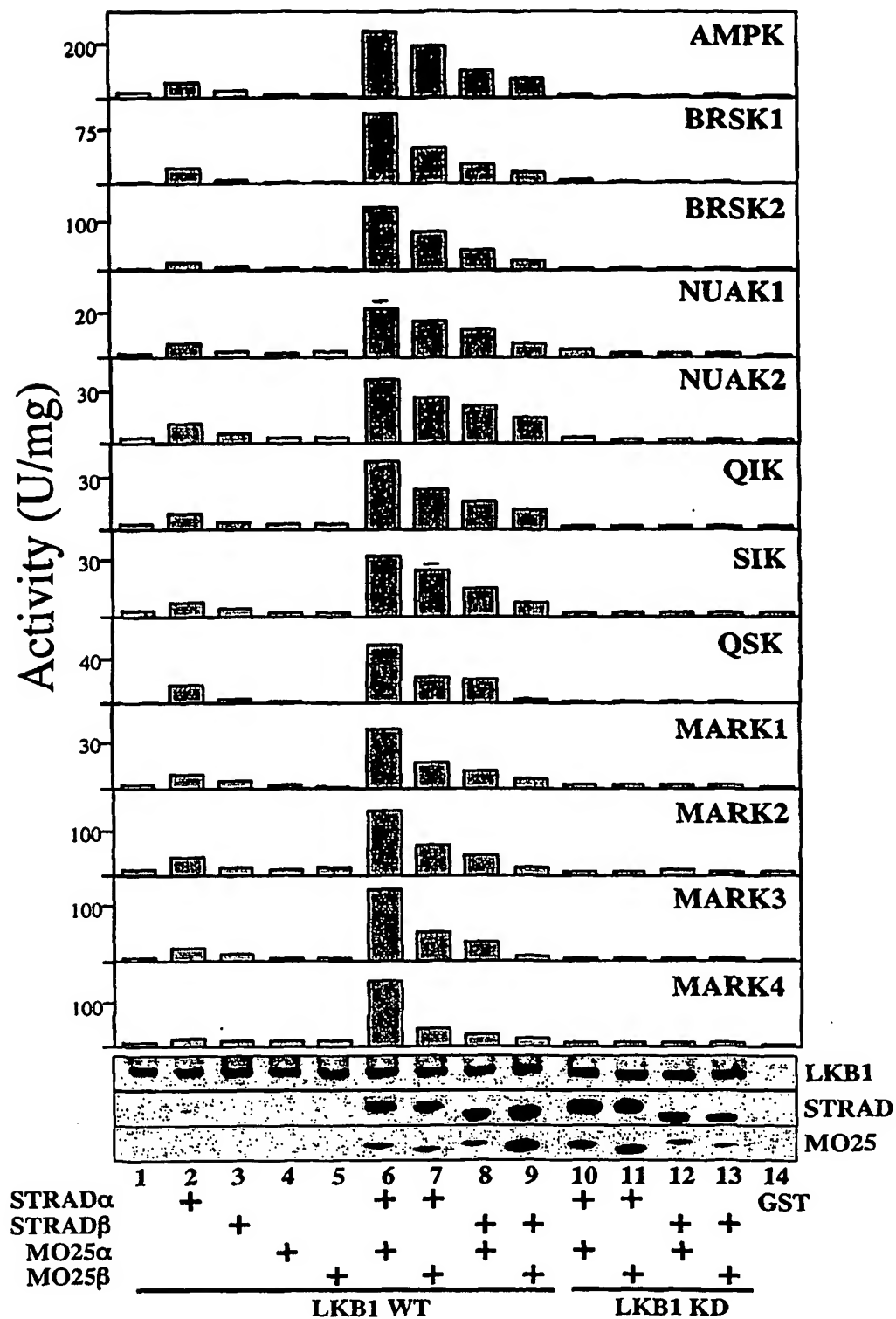


Figure 23

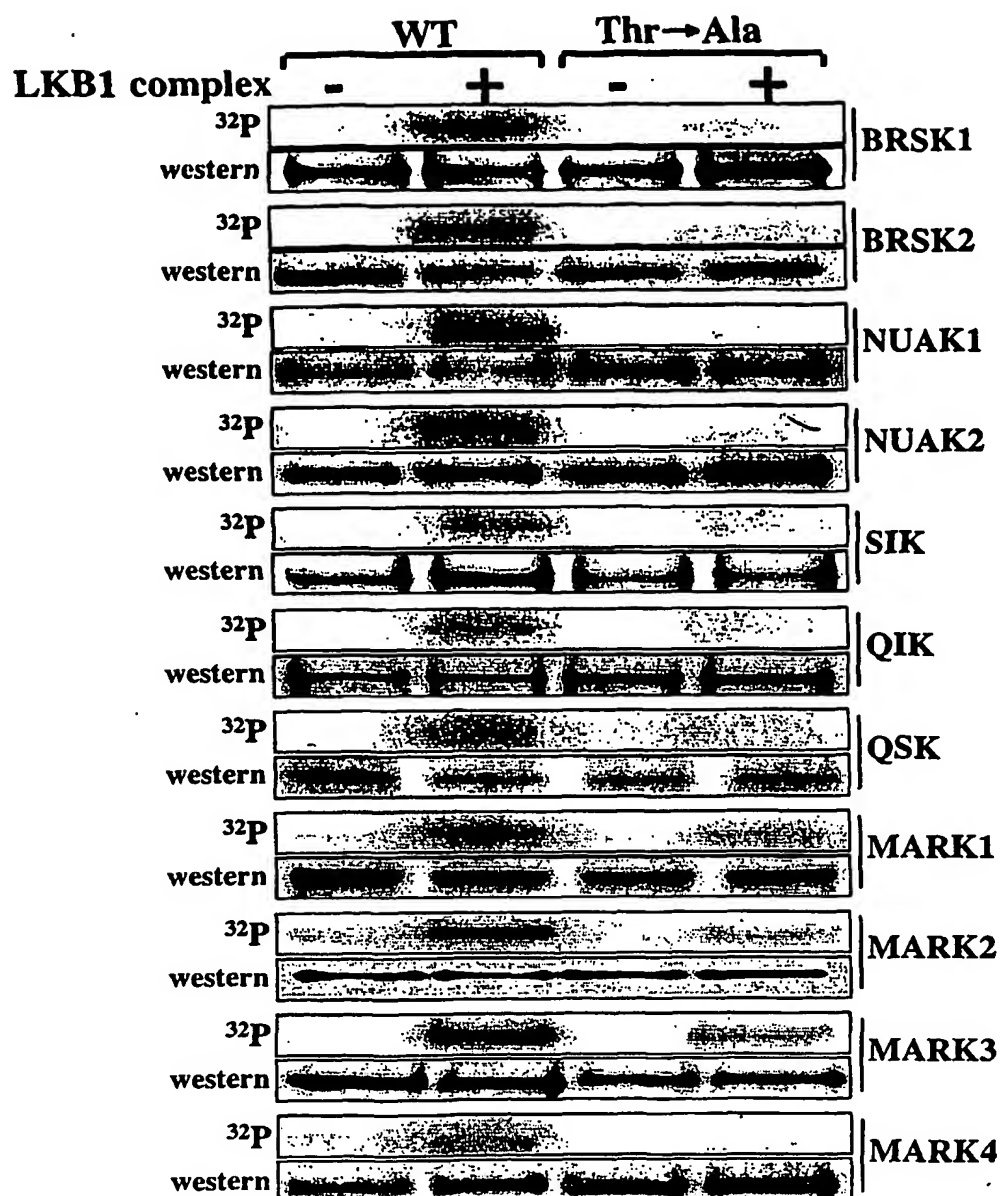


Figure 24

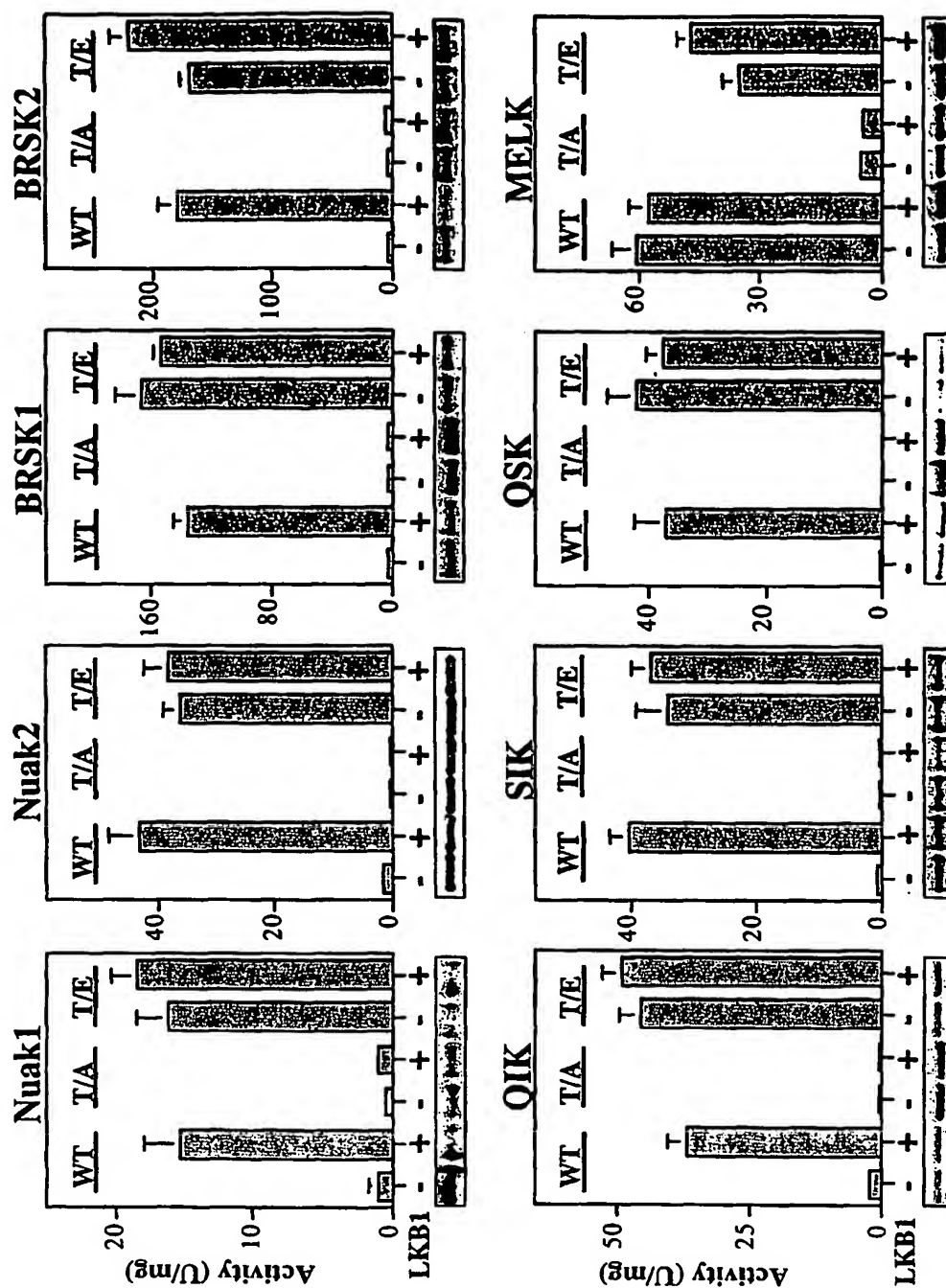


Figure 25

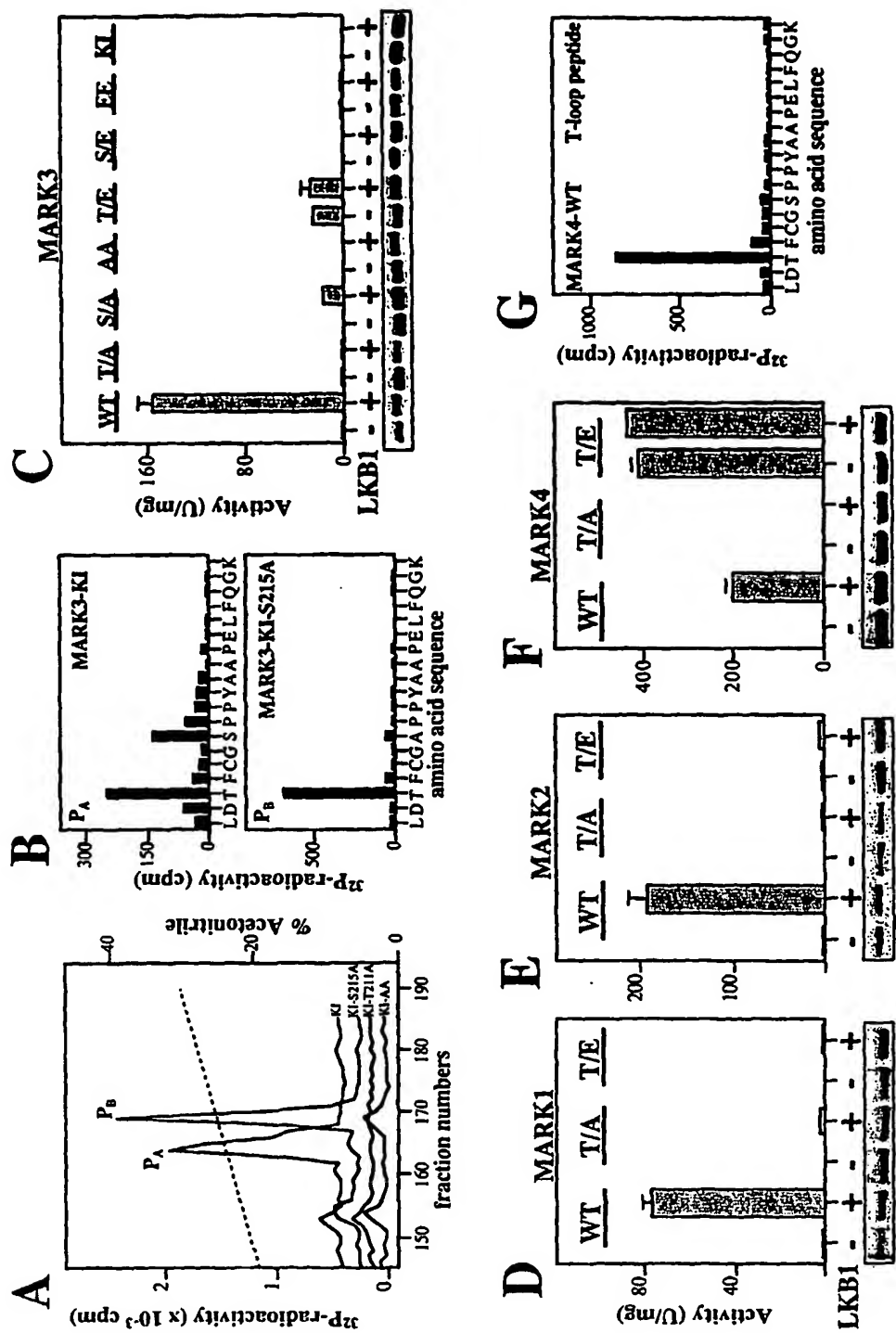


Figure 26

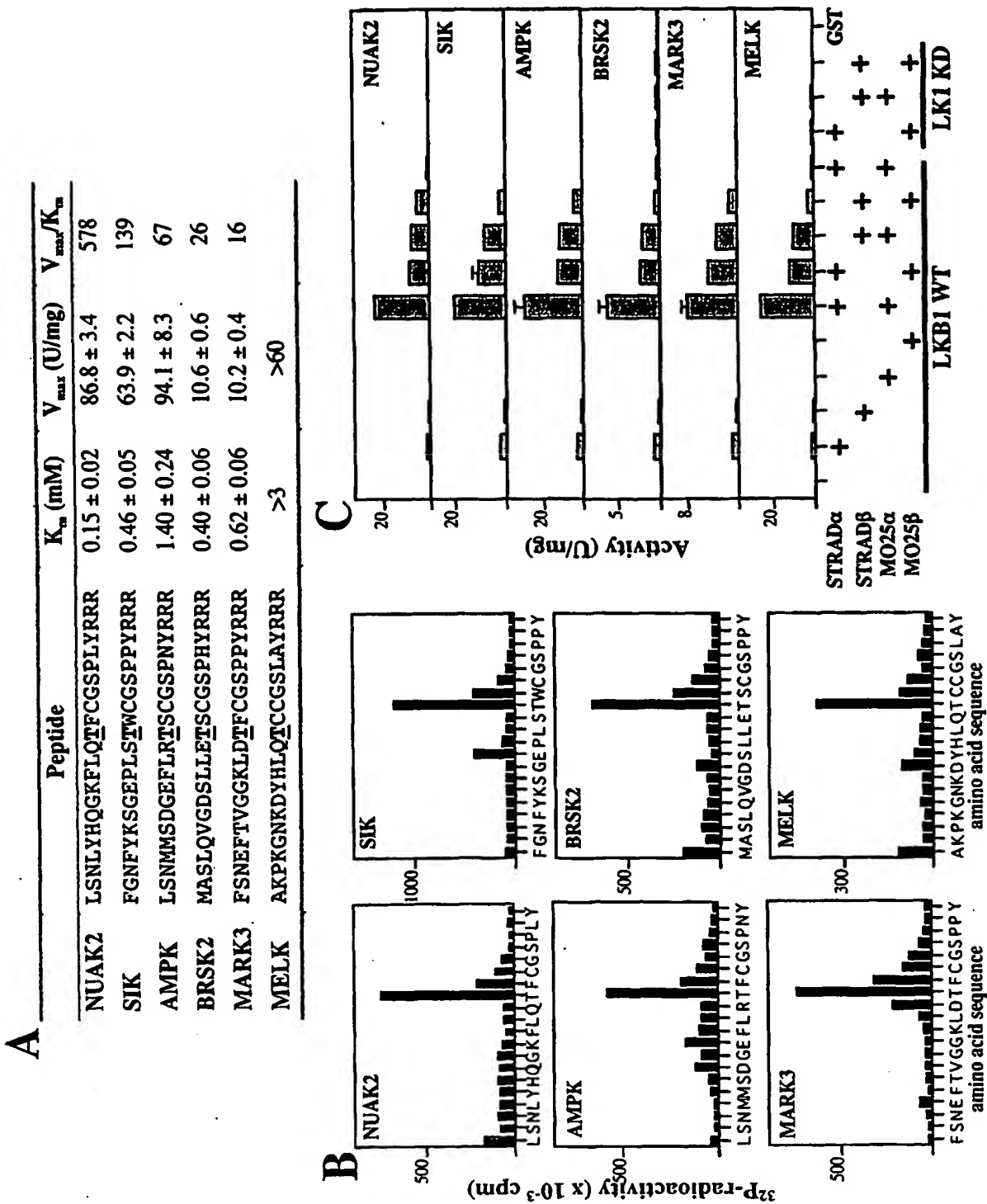


Figure 27

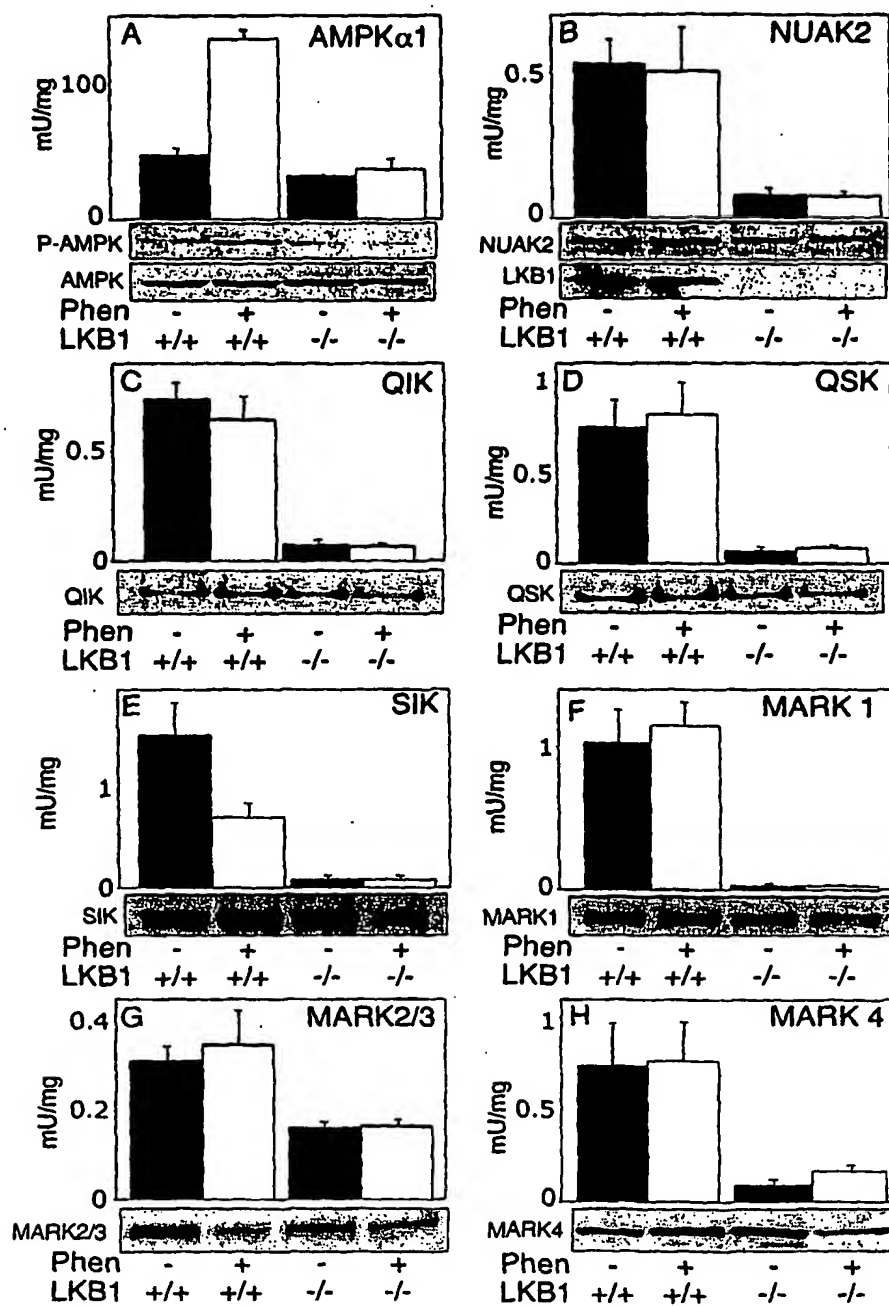


Figure 28

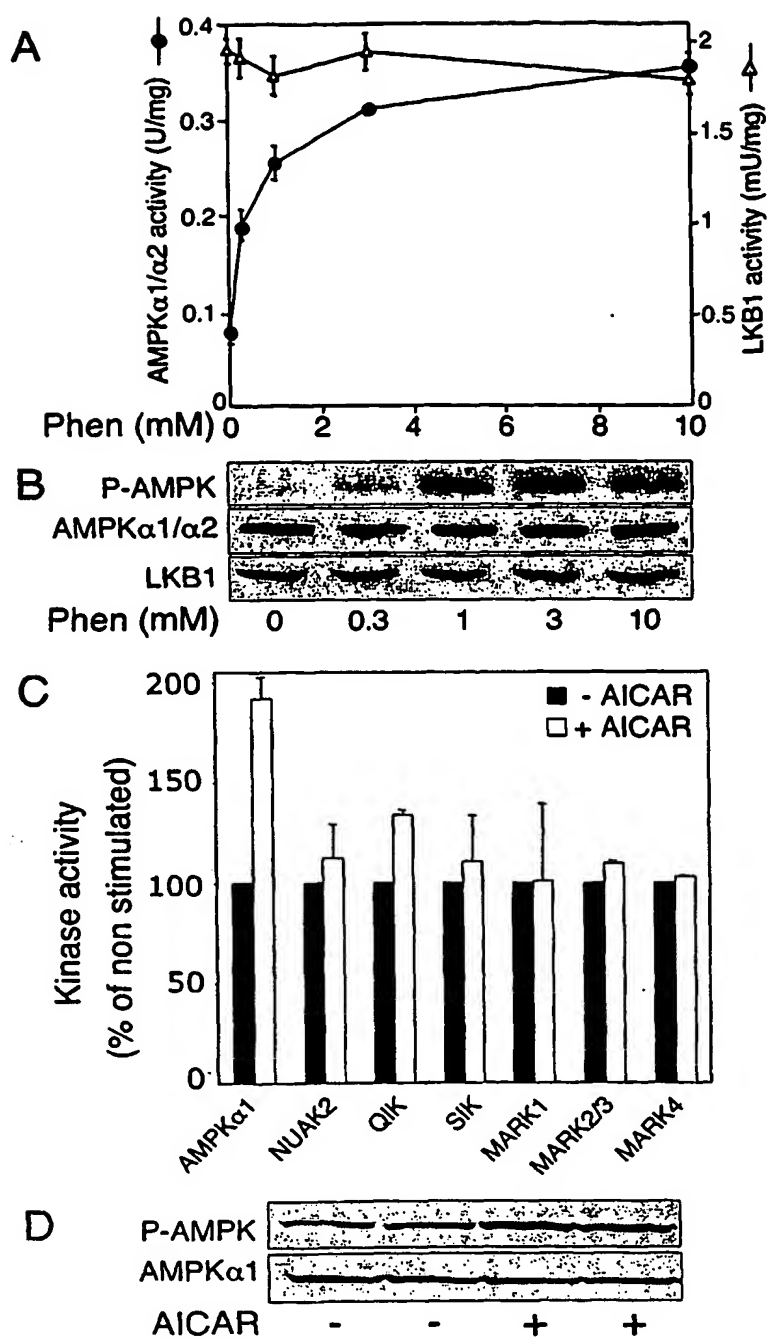


Figure 29

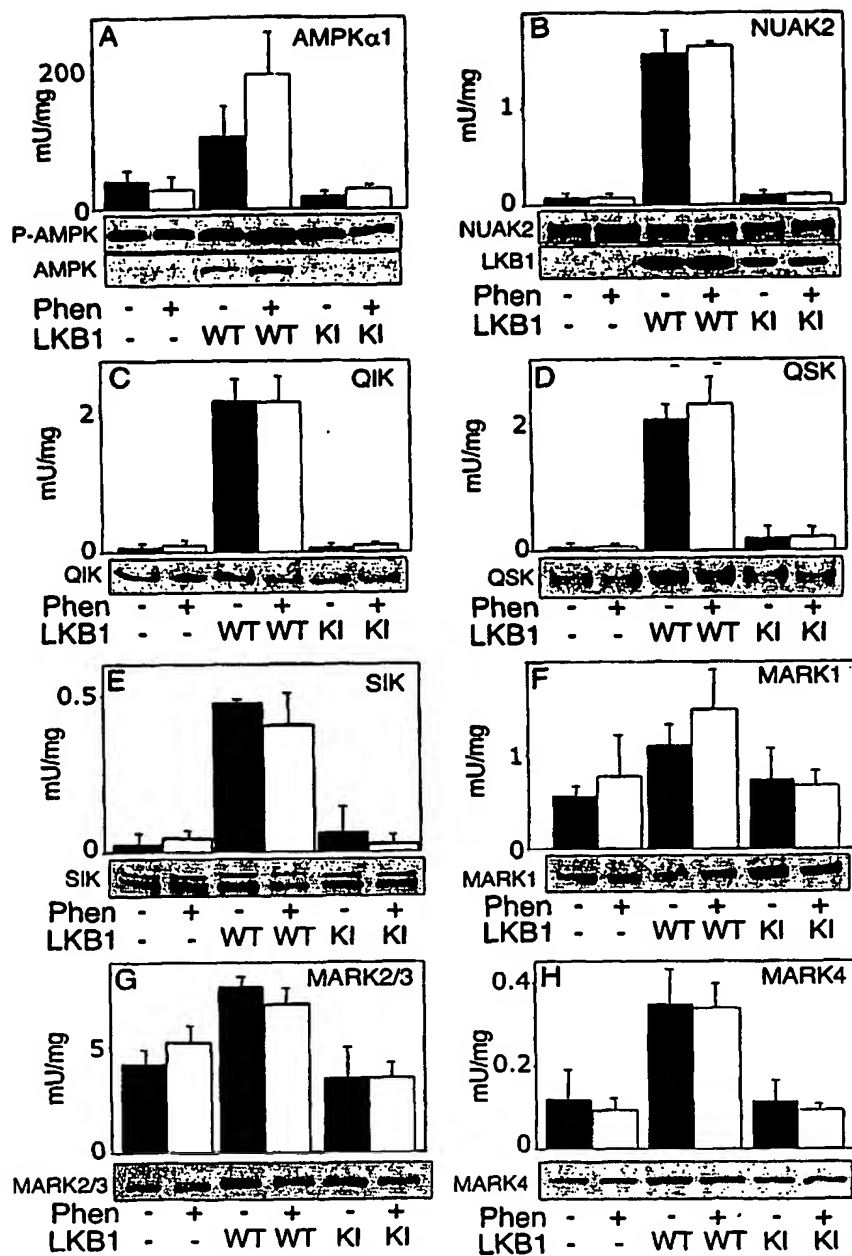
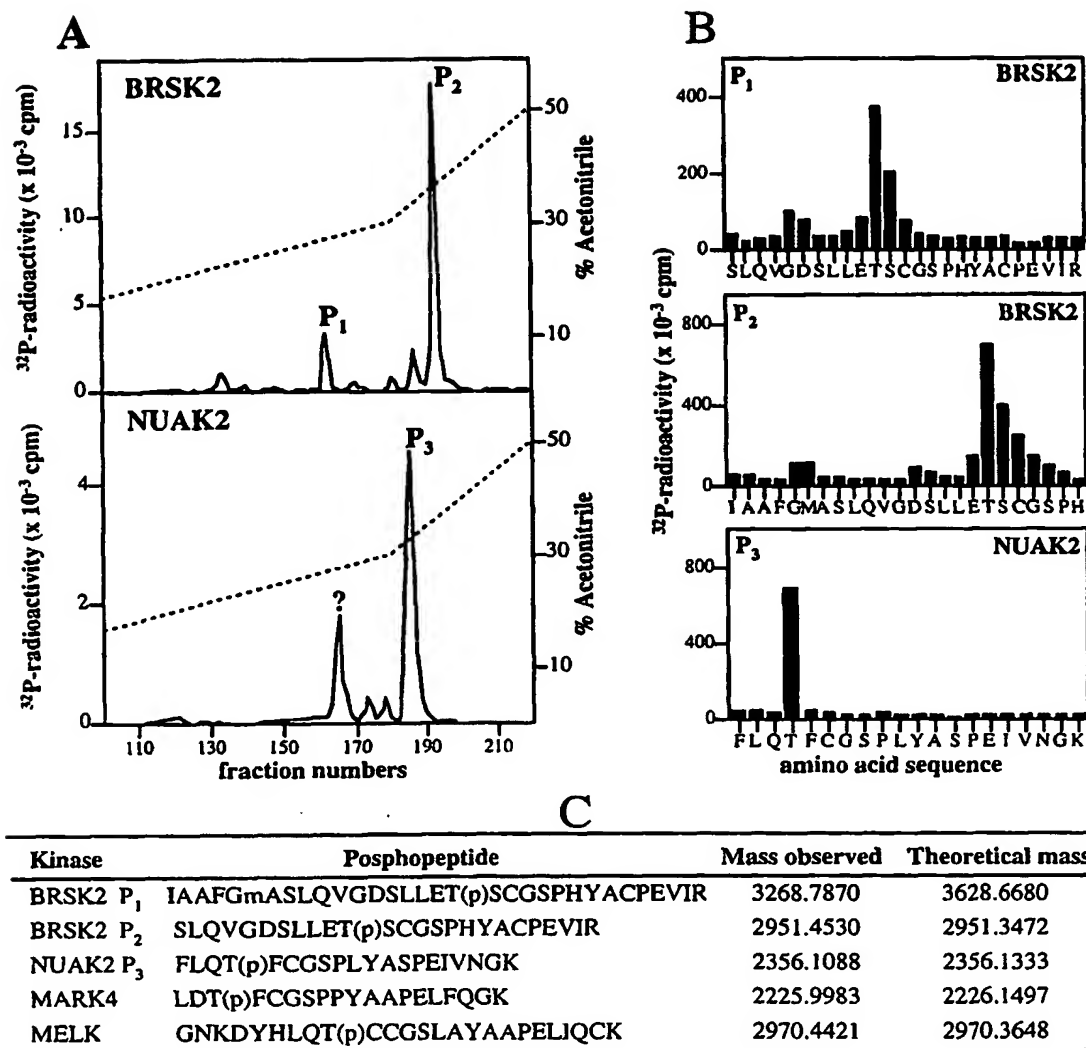


Figure 30



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